

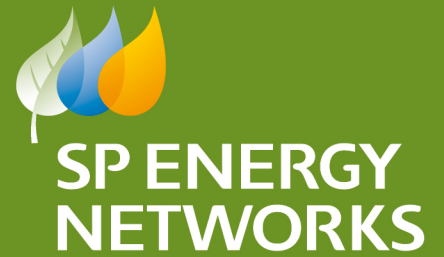
SP Energy Networks

Galashiels to Eccles 132kV OHL Replacement

Routeing and Consultation Report

Final report

Prepared by LUC
September 2021



Contents

Chapter 1

Introduction

Purpose of this Report	1
The Need for the Galashiels to Eccles 132kV OHL Replacement Project	1
The Components of the Galashiels to Eccles 132kV OHL Replacement Project	2
SPEN's Statutory and Licence Duties	2
The Development and Consenting Process	2
The Structure of the Report	3

Chapter 2

Project Description

Galashiels to Eccles 132kV OHL Replacement	5
Overhead Line Infrastructure	5
Construction Process	6

Chapter 3

Approach to Routeing

SPEN's Overall Approach to Routeing	8
The Galashiels to Eccles 132kV OHL Replacement Project Routeing Objective	8
Established Practice for Overhead Line Routeing	9
Overview of Routeing Process	9
Identification and Appraisal of Route Options	10
Selection of the Preferred Route	10

Chapter 4

Identification of Route Options

The Project Routeing Strategy	12
The Study Area	12
Planning Policy Context	13
Identification and Mapping of Routeing Considerations	14
Identification of Route Options	15
Description of Route Options	16

Chapter 5

Appraisal of Route Options

Approach to Appraisal of Route Options	17
Appraisal Criteria	17

Chapter 6

Appraisal Findings

Consideration of Cumulative Effects of Emerging Route Option Preference	24
Conclusion	24

Chapter 7

Consultation Process and Next Steps

Appendix A

The Holford Rules and SHETL Clarification Notes

A-1

Appendix B

Environmental Considerations

B-1

Appendix C

Landscape Susceptibility Appraisal

C-3

Appendix D

Route Options Appraisal Table

D-1

Appendix E

Newspaper Advertisement

E-1

Appendix F

Project Leaflet

F-1

Appendix G

Stakeholder Consultee List

G-1

Chapter 1

Introduction

Purpose of this Report

1.1 This document has been prepared by LUC on behalf of SP Energy Networks (SPEN). It relates to the identification and appraisal of route options for a new 132 kilovolt (kV) double circuit overhead line (OHL) supported on 'L7' steel lattice towers, to replace the existing 132kV OHL network (comprising 'AT' and 'U' routes) from Galashiels substation to Eccles substation. The construction and operation of the new 132kV OHL and the removal of the existing 'AT' and 'U' routes is hereafter referred to as the 'Galashiels to Eccles 132kV OHL Replacement Project'. The location of the Galashiels to Eccles 132kV OHL Replacement Project is shown on **Figure 1.1**.

1.2 This report presents the methodology adopted for routing the new OHL, culminating with the description of the 'preferred route' for the OHL connection. This report also sets out the process for the consultation which will be undertaken. This process is designed to gather feedback from stakeholders, including the public, to inform the subsequent stages of the Galashiels to Eccles 132kV OHL Replacement Project.

The Need for the Galashiels to Eccles 132kV OHL Replacement Project

1.3 SPEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system.

1.4 The existing 'AT' and 'U' routes between Galashiels and Eccles substations (**Figure 1.1**) currently secure the supplies in this area. The 'AT' route is a 132kV OHL of approximately 30km in length, carried on single circuit double wood pole supports with an average height of 14m and single and double circuit steel lattice towers with an average height of 22m. The 'U' route is a single circuit 132kV OHL of approximately 26km in length, carried on asymmetrical steel lattice towers (average 22m in height).

1.5 To ensure sufficient capacity for electricity that needs to be transmitted throughout the area, SPEN's proposal is to remove the existing 'AT' and 'U' routes between Galashiels and Eccles substations, and replace with one new route between the two substations. This upgrade is expected to ensure a more reliable and economical transmission network. Furthermore, as the existing OHLs get older, the need for

maintenance work becomes more critical and more difficult, and the exposure to unplanned outage (faults) increases. Asset replacement is therefore essential to provide secure supplies to existing and future customers.

1.6 The replacement will be a double circuit 132kV OHL carried on 'L7' steel lattice towers (on average 27m in height). The tower heights will range from approximately 23.16m to 36m in height, depending on ground profiles (**Figure 2.1**). By comparison, the existing 'U' route is approximately 18m to 30m in height and the existing 'AT' route ranges from approximately 10m to 29m in height.

The Components of the Galashiels to Eccles 132kV OHL Replacement Project

1.7 The Galashiels to Eccles 132kV OHL Replacement Project comprises the replacement of the existing Galashiels to Eccles OHLs ('AT' and 'U' routes) through the following:

- The construction of a new 132kV double circuit OHL carried on L7 steel lattice towers between the existing Galashiels and Eccles substations;
- The removal of the existing 132kV single circuit OHL carried on asymmetrical steel lattice towers (the 'U' route) between Galashiels and Eccles substations; and
- The removal of the existing 132kV single circuit OHL carried on double wood pole supports as well single circuit and double circuit steel lattice towers (the 'AT' route) between Galashiels and Eccles substations.

1.8 Further details of the components of the Galashiels to Eccles 132kV OHL Replacement Project are provided in **Chapter 2**.

SPEN's Statutory and Licence Duties

1.9 As a transmission licence holder for southern Scotland, SPEN¹ is required under Section 9(2) of the Electricity Act 1989 to:

- develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
- facilitate competition in the supply and generation of electricity.

1.10 Schedule 9 of the Electricity Act 1989 imposes a further statutory duty on SPEN to take account of the following factors in formulating proposals for the installation of overhead transmission lines:

- *"(a) to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*
- *(b) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."*

1.11 SPEN's 'Schedule 9 Statement' sets out how it will meet the duty placed upon it under Schedule 9. The Statement also refers to the application of best practice methods to assess the environmental impacts of proposals and to identify appropriate mitigation measures.

1.12 As a result of the above, SPEN is required to identify electrical connections that meet the technical requirements of the electricity system, which are economically viable, and cause on balance, the least disturbance to both the environment and the people who live, work and enjoy recreation within it.

The Development and Consenting Process

1.13 The Project comprises three key phases:

- Phase One: Routeing and Consultation.
- Phase Two: Environmental Impact Assessment (EIA)/Environmental Appraisal.
- Phase Three: Application for Consent.

Phase One: Routeing and Consultation

1.14 This report relates to Phase One, which comprises a review of environmental, technical and economic considerations and the application of established step-by-step routeing principles to identify and appraise potential route options to establish a 'preferred' route for the OHL.

1.15 SPEN is committed to ongoing consultation with interested parties, including statutory and non-statutory consultees and local communities. Whilst there is no statutory requirement to consult during the early routeing stages, SPEN nonetheless considers it good practice to introduce consultation at this stage.

¹ SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). SP Transmission plc is

the holder of a transmission licence. The references below to SPEN in the context of statutory and licence duties and the application for section 37 consent below should be read as applying to SP Transmission plc

1.16 Responses to the consultation process will be evaluated and the 'proposed' route confirmed for progression to the next stage.

Phase Two: Environmental Impact Assessment/Environmental Appraisal

1.17 Phase Two comprises an Environmental Impact Assessment (EIA)/Environmental Appraisal² of the 'proposed' new 132kV OHL route and removal of the existing 'AT' and 'U' routes. EIA will be required under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, should the project be deemed likely to give rise to potential significant environmental effects given its nature, size and location. The EIA process will seek to avoid, reduce and where possible, offset likely significant impacts on the environment through an iterative design process for the proposed OHL.

1.18 The EIA/Environmental Appraisal process will culminate in the production of either an Environmental Impact Assessment Report (EIA Report)/Environmental Report which will report on the effects of construction and operation of the Galashiels to Eccles 132kV OHL Replacement Project in its entirety including the removal of the existing 'AT' and 'U' routes. To avoid disruption to essential power supplies currently provided by the existing 'AT' and 'U' routes, these existing OHLs will continue to be operational during the construction of the new OHL. Only after the new OHL is fully installed and operational will the existing 'AT' and 'U' routes be decommissioned and removed. Therefore, the EIA/Environmental Appraisal will also consider the cumulative effects of the existing OHLs with the proposed new OHL, both of which will be present in the landscape during the construction phase of the new Galashiels to Eccles OHL (approximately 18 months). The decommissioning will be completed directly following the commissioning of the new OHL.

Phase Three: Application for Consent

1.19 Following completion of the Environmental Report, SPEN will be applying to Scottish Ministers for consent under Section 37 of the Electricity Act 1989 ('the Electricity Act'), as amended, to install, and keep installed, the proposed OHL identified above. In conjunction with the Section 37 application, SPEN will apply for deemed planning permission for the OHL under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended. The Environmental Impact Assessment Report (or Environmental

Report if the Ministers deem the project to not be EIA development) will accompany the application.

Stakeholder Engagement

1.20 Stakeholder engagement, including public involvement, is an important component of the Scottish planning and consenting system. Legislation and government guidance aim to ensure that the public, local communities, statutory and other consultees and interested parties have an opportunity to have their views taken into account throughout the planning process.

1.21 Striking the right balance can be challenging, and in seeking to achieve this SPEN recognises the importance of consulting effectively on proposals and of being transparent about the decisions reached. SPEN is keen to engage with key stakeholders including local communities and others who may have an interest in the Galashiels to Eccles 132kV OHL Replacement Project. This engagement process begins at the early stages of development of a project and continues into construction once consent has been granted.

1.22 SPEN's approach to stakeholder engagement for major electrical infrastructure projects is outlined in Chapter 2 of the document 'Approach to Routeing and Environmental Impact Assessment'³. SPEN aims to ensure effective, inclusive, and meaningful engagement with the public, local communities statutory and other consultees and interested parties through four key engagement steps:

- Information gathering to inform the routeing stage;
- Consultation on specific requirements;
- Obtaining feedback on the preferred route; and
- The Environmental Impact Assessment/Environmental Appraisal stage.

1.23 In addition, and as noted above, SPEN as a holder of a transmission licence, has a duty under Section 38 and Schedule 9 of the Electricity Act 1989, when formulating proposals for new electricity lines and other transmission development, to have regard to the effect of work on communities, in addition to the desirability of the preservation of amenity, the natural environment, cultural heritage, landscape and visual quality.

The Structure of the Report

1.24 This report comprises of the following chapters:

² An Environmental Appraisal will be undertaken should the Scottish Ministers determine that EIA is not required through the issuing of an EIA Screening Opinion.

³ ScottishPower Energy Networks (2021), 'Approach to Routeing and Environmental Impact Assessment': https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

- **Chapter 1:** Introduction;
- **Chapter 2:** Project Description;
- **Chapter 3:** Approach to Routeing;
- **Chapter 4:** Identification of Route Options;
- **Chapter 5:** Appraisal of Route Options;
- **Chapter 6:** Appraisal Findings;
- **Chapter 7:** The Consultation Process and Next Steps.

1.25 This report is also supported by figures and appendices, as listed in the contents page above.

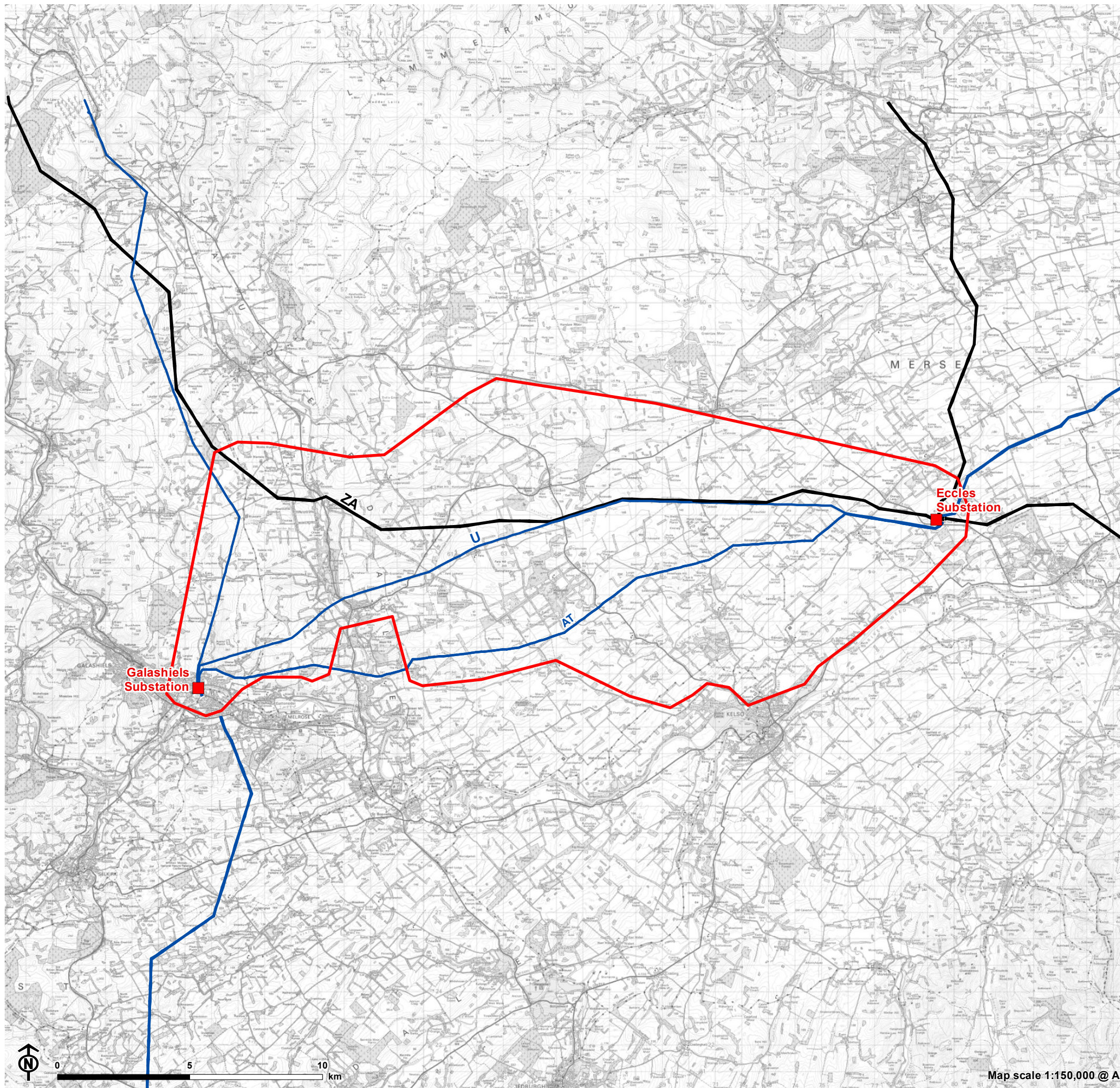


Figure 1.1: Location Plan

- Study area
- 132kV overhead line
- 400kV overhead line
- Substation



Chapter 2

Project Description

Galashiels to Eccles 132kV OHL Replacement

2.1 The existing 'AT' and 'U' OHL routes between Galashiels and Eccles substations are coming to the end of their operational lives and require to be replaced to ensure electricity supplies are maintained.

2.2 A new double circuit 132kV OHL carried on steel lattice towers is required between the Galashiels and Eccles substations.

2.3 This will also require the removal of both the 'AT' and 'U' routes between the Galashiels and Eccles substations. The 'AT' route will require the removal of 30km of existing single and double circuit 132kV OHL, comprising of single circuit wood pole, single circuit steel lattice tower and double circuit steel lattice tower. The 'U' route will require the removal of 26km of existing single circuit 132kV OHL comprising of single circuit 132kV steel lattice towers.

Overhead Line Infrastructure

2.4 With an overhead line of this nature, conductors (or wires) are suspended at a specified height above ground and supported by steel lattice towers, spaced at intervals.

2.5 Conductors can be made either of aluminium or steel strands. Most OHLs at 132kV and above carry two 3-phase circuits, with one circuit strung on each side of a tower. An earth wire may be required to provide lightning protection.

2.6 Conductors are strung from insulators attached to the lower cross-arms and prevent the electric current from crossing to the tower body.

Tower Types

2.7 Towers can be used to carry conductors at 132kV and above. These are generally of a lattice steel construction fabricated from high tensile steel which is assembled using galvanised high tensile steel bolts with nuts and locking devices.

2.8 There are three types of tower:

- Suspension or Line: where the tower is part of a straight line connection.

- Tension or Angle: where there is a horizontal or vertical deviation in line direction of a specified number of degrees. There are three main types of angle tower: 30 degrees, 60 degrees and 90 degrees.
- Terminal: where the OHL terminates into a substation or on to an underground cable section via a separate cable sealing end compound or platform.

2.9 Figure 2.1 illustrates the variants of the suspension, tension and terminal L7 steel lattice towers.

Tower Heights and Span Lengths

2.10 The OHL will be supported on L7 lattice steel towers, which have six cross-arms (three on each side) and a standard design height of 27m.

2.11 The section of OHL between towers is known as the 'span', with the distance between them known as the 'span length'. Span lengths between towers average between 250m and 350m but can be increased if there is a requirement to span something such as a river or a loch.

2.12 Towers are used to regulate the statutory clearances required for conductor height, which is determined by the voltage of the OHL (the higher the voltage, the greater the safety clearance that will be required) and the span length required between towers.

Tower Colour

2.13 Towers are fabricated from galvanised steel. It is not possible to colour towers to camouflage them for all times of day or all seasons. However, the colour of towers can only be recognised for a short distance. Beyond this distance, the colour is not distinguishable and appears as grades of light and dark. Where towers are viewed against the sky, colour cannot be relied upon to diminish visibility, since the lighting characteristics of the sky vary greatly. Towers will turn a dull grey colour after about 18 months.

Underground Cables

2.14 Where a section of underground cable is required, for example where the OHL terminates and connects into the substation, the conductors are encased in insulated material and buried in a backfilled trench of suitable depth and width. Whilst the number of cables, and the depth and width of the trench depends on the circuit rating and voltage, the width of the trench can be substantial. This would be dependent on the installation method, environmental issues, ground conditions and access requirements during construction. For example, two 132kV circuits run together, each with two cables/phase, would require a trench greater than 2400mm wide (possibly up to 5m wide) with an adjacent working area of up to 3m wide. Where connected to an OHL, an underground cable may also

involve the creation of a fenced compound for the siting of terminal supports and sealing end compounds above ground. It is likely that a small section of underground cable will be required between the terminal steel tower and Eccles substation, and this will be designed and submitted as part of the application for Section 37 Consent and deemed planning permission.

Construction Process

2.15 The construction of OHLs and underground cables requires additional temporary infrastructure such as temporary accesses to tower locations and construction compounds to store materials. All have limited maintenance requirements, and all are subject to well-established procedures for dismantling/decommissioning.

Overhead Lines

Steel Tower Construction

2.16 The construction of the OHL will follow a well-established sequence of activities as outlined below:

- Preparation of accesses;
- Excavation of foundations;
- Tower delivery;
- Erection of towers;
- Delivery of conductors and stringing equipment;
- Insulator and conductor erection and tensioning; and
- Clearance and reinstatement.

Access

2.17 Prior to construction the OHL, temporary accesses will be constructed, as necessary, and laydown/storage areas established, usually mid-way along the route. Any trees which may impact on safety clearances will be removed or lopped. Following commissioning of the OHL and decommissioning of the existing OHLs, all equipment and temporary access of construction areas will be removed with the land being reinstated to the satisfaction of the landowner.

Temporary Working

2.18 Temporary working areas will be required for the duration of construction works. It is possible that these temporary working areas will also be used for the decommissioning works of the existing OHLs. Temporary vehicular access is required to every tower location. Steel tower locations will have a working area of approximately 50m x 50m. In some cases, the shape or size of the working area will be determined by nearby environmental or land use

constraints, identified during the EIA process/prior to construction. Following the completion of the construction works and the decommissioning of the existing OHLs, the temporary working areas will be reinstated and restored to former conditions.

Construction Timescales

2.19 The total duration of construction activity at any single tower is approximately three weeks for tower foundations, one to two weeks for tower construction, and up to four weeks for conductor erection and stringing depending on the size of the tower and the number of the conductors to be strung. These periods are spread over about four months, with periods of inactivity between, or longer if construction difficulties are experienced along the line or ground conditions prevent normal progress.

2.20 Directly following energisation of the new Galashiels to Eccles OHL, the existing 'U' and 'AT' routes will be decommissioned and removed.

Operation and Maintenance

2.21 The majority of OHL components are maintenance free, although periodic painting of the tower steelwork may be required, and components are regularly inspected for corrosion, wear and deterioration. There is also an ongoing requirement to ensure that any trees within the wayleave corridor do not impact on safety clearances. Walkover surveys or flyovers will identify where there is a requirement to clear wayleaves of net growth.

2.22 The condition of tower steelwork and foundations is monitored regularly. Towers which have deteriorated significantly may be dismantled carefully and replaced.

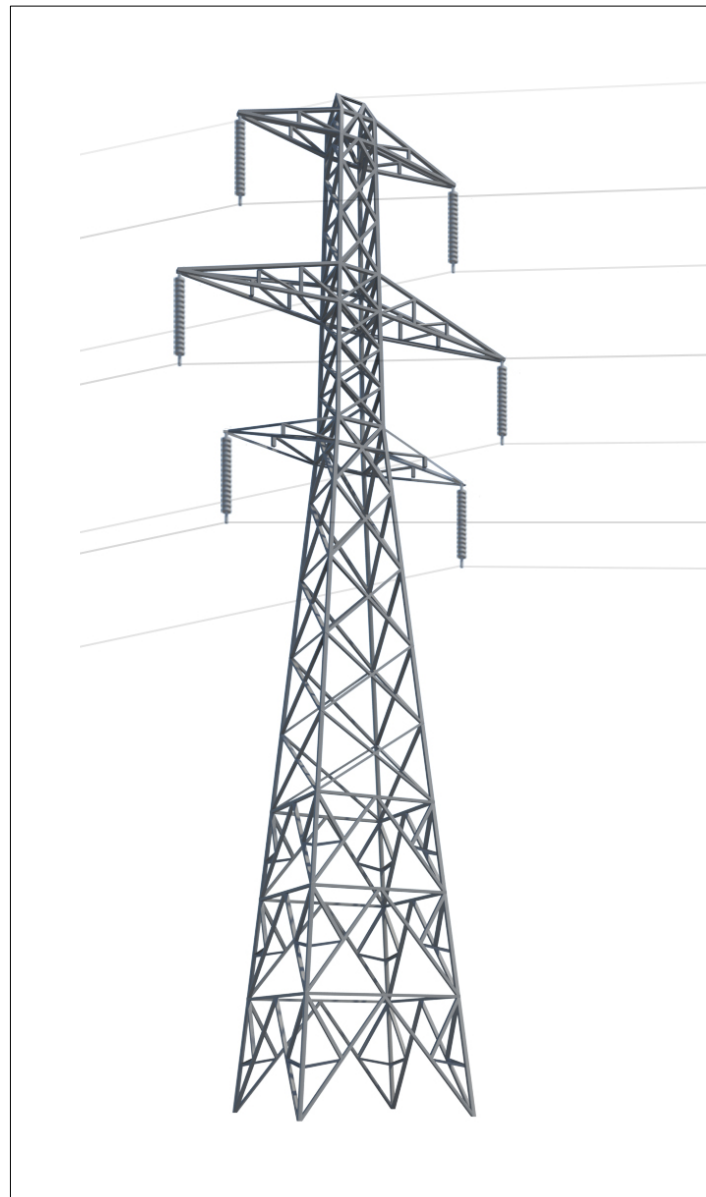
Decommissioning

2.23 When the operational life of the proposed new Galashiels to Eccles OHL comes to an end, it is possible that the line may be re-equipped with new conductors and insulators and refurbished. Alternatively, the OHL may be decommissioned fully.

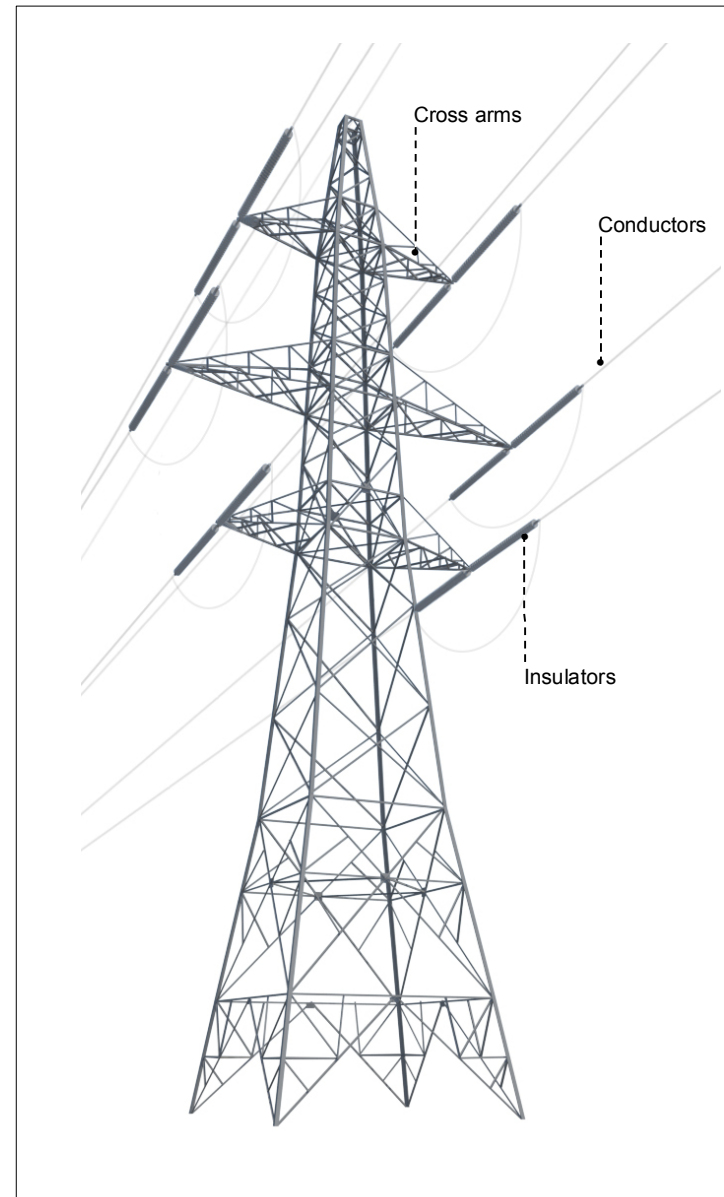
2.24 As mentioned previously, directly following energisation of the proposed new Galashiels to Eccles OHL, the existing 'U' and 'AT' routes will be decommissioned and removed.

2.25 Existing towers/wood poles will be removed with components re-used where possible. Foundations (for steel towers) will be removed to a minimum depth of one metre below ground level, the area cleared and ground reinstated to its former condition.

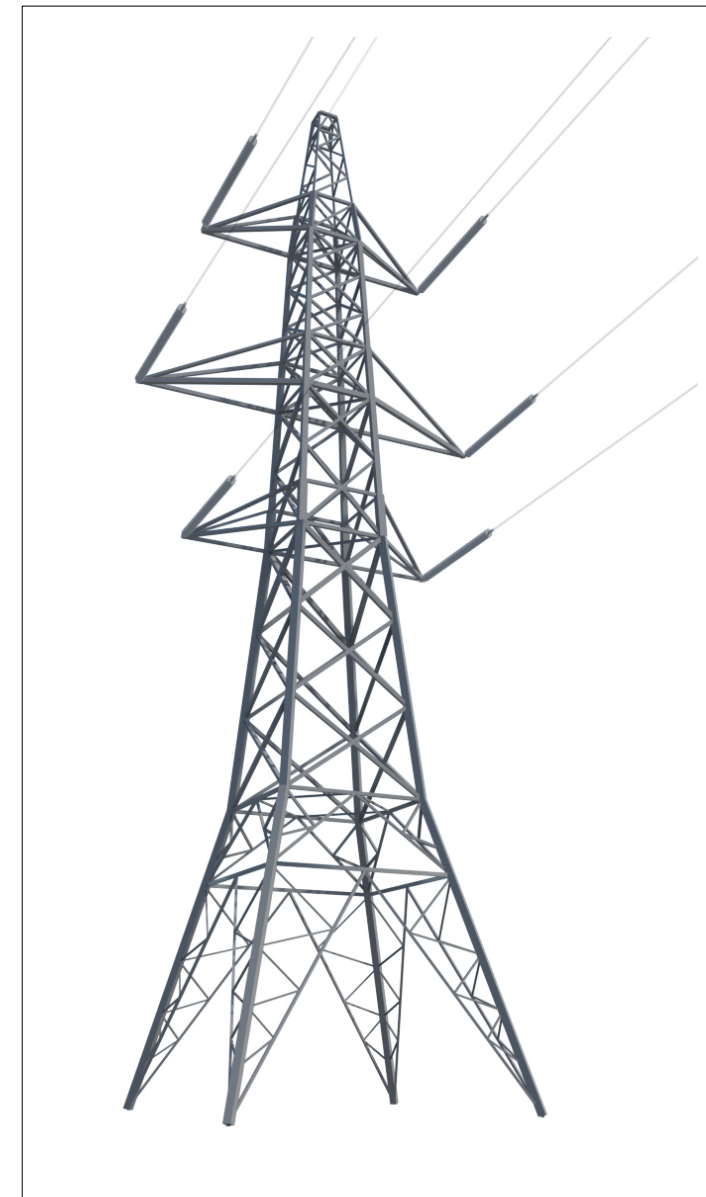
Figure 2.1: Typical L7 Steel Lattice Tower



Component parts of 132kV steel lattice tower L7: Suspension tower



Component parts of 132kV steel lattice tower L7: Angle tower



Component parts of 132kV steel lattice tower L7: Terminal tower

Chapter 3

Approach to Routeing

SPEN's Overall Approach to Routeing

3.1 The Government, Ofgem and the electricity industry, including SPEN, have reviewed their positions on OHLs. They remain of the view that the need to balance economic, technical and environmental factors, as a result of statutory duties and licence obligations, continues to support an OHL approach in most cases.

3.2 It is therefore SPEN's view that wherever practical an OHL approach is taken when planning and designing new transmission lines. However, SPEN accepts that there are specific circumstances in which an undergrounding approach should be considered.

3.3 In May 2021, SPEN published the second version of its Approach to Routeing and Environmental Impact Assessment document outlining the approach taken to routeing transmission infrastructure⁴. Every project broadly follows the well-established and sequential step-by-step process summarised in **Figure 3.1** below. One key change from the previous 2015 version is the consideration of Biodiversity Net Gain (BNG) and how SPEN will seek to integrate this into the routeing, EIA, and project delivery stages to ensure that projects contribute to its business targets for biodiversity enhancement. The routeing work for the Galashiels to Eccles 132kV OHL Replacement Project commenced before the publication of the latest guidance, however BNG will be fully considered in the detailed design process as well as in the EIA. As part of the routeing work undertaken to date, consideration of more valued habitats and the avoidance of these (commonly associated with designated sites such as SSSIs), has already been taken when identifying and appraising route options. **Error! Hyperlink reference not valid.**

The Galashiels to Eccles 132kV OHL Replacement Project Routeing Objective

3.4 In accordance with SPEN's approach to routeing, the routeing objective for the Galashiels to Eccles 132kV OHL Replacement Project is:

⁴ Major Electrical Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment (2nd version, May 2021) Available [online] at:

https://www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routeing_Document_2nd_version.pdf

“To identify a technically feasible and economically viable route for a continuous 132kV overhead line connection supported on steel lattice towers from the existing substation at Galashiels to the existing substation at Eccles. The route should, on balance, cause the least disturbance to the environment and the people, who live, work and enjoy recreation within it.”

Established Practice for Overhead Line Routeing

3.5 SPEN's overall approach is based on the premise that the main effect of an OHL is visual, as a result of its scale relative to objects in the vicinity such as buildings and trees, and that as there is no technical way of reducing this other than choice of support (towers and/or poles), and only limited ways of achieving screening through planting. The most effective way of causing least visual disturbance is by careful routeing. In addition, a well routed OHL takes account of other environmental and technical considerations, even if the length is increased as a consequence.

3.6 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing OHLs, 'The Holford Rules', should continue to be employed as the basis for routeing high voltage OHLs. The Holford Rules were reviewed circa 1992 by the National Grid Company (NGC) Plc. (now National Grid Electricity Transmission Plc (NGT)) as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of the Holford Rules (and NGC clarification notes) was undertaken by ScottishHydro Electric Transmission Limited (SHETL) in 2003 to reflect Scottish circumstances.

3.7 The Holford Rules and the NGC and SHETL clarification notes are included in **Appendix A**. These guidelines for the routeing of new high voltage overhead transmission lines form the basis for routeing the Galashiels to Eccles 132kV OHL Replacement Project. Key principles of the Holford Rules include avoiding prominent ridges and skylines, following broad wooded valleys, avoiding settlements and residential properties and maximising opportunities for 'backclothing' infrastructure.

3.8 For simplicity, the methodology is set out in a linear manner (as shown in **Figure 3.1**), with the findings of each step informing the next step, building up an ever-increasing level of understanding to inform the routeing process. However, it is important to note that this process remains iterative, with the steps subject to a technical review and consultation where necessary. This enables assumptions to be confirmed and ensures confidence in the findings, prior to the commencement of subsequent steps.

Overview of Routeing Process

Study Area

3.9 A study area is first defined, which is large enough to accommodate all likely route options, taking account of the technical requirements (i.e. connection points) and factors such as topography. Baseline mapping of the routeing considerations outlined below then enables routeing constraints and opportunities to be identified.

Environmental Considerations

3.10 Statutory duties imposed by Section 38 and Schedule 9 of the Electricity Act 1989 require licence holders to seek to preserve features of natural and cultural heritage interest, and to mitigate where possible, any effects which their proposals may have on such features. The construction and operation of an overhead transmission line will have potential effects on people and the environment, including potential effects on (in no hierarchical order):

- visual amenity;
- landscape character;
- ecology and ornithology;
- hydrology, hydrogeology, geology and water resources;
- cultural heritage; and
- land uses including committed development and forestry.

3.11 Some effects can be avoided or limited through careful routeing. Other effects are best mitigated through local deviations of the route, the refining of steel tower locations and/or specific construction practices. These are reviewed as part of the EIA/design process.

Technical Considerations

3.12 Technical considerations which can influence routeing include the existing and proposed electricity transmission network (such as the existing 400kV OHL between Cockenzie substation and Eccles substation ('ZA' route)), slope gradient, altitude, waterbodies, road crossings and existing wind turbines.

Economic Considerations

3.13 In compliance with the duties imposed on SPEN in terms of Section 9 of the Electricity Act 1989, the proposed route must be 'economically viable'. This is interpreted by SPEN as meaning that as far as is reasonably practicable, and all other concerns being equal, the line should be as direct as possible and the route should avoid areas where technical difficulty or

compensatory requirements would render the scheme unviable on economic grounds

Identification and Appraisal of Route Options

3.14 Following identification of the study area a number of possible 'route options' for the Galashiels to Eccles 132kV OHL Replacement Project are identified. This process involves the avoidance where possible of areas of high 'amenity' value. These areas generally include areas of natural and cultural heritage value designated at a national, European or international level as these are afforded the highest levels of policy protection.

3.15 The process also includes the consideration of areas that are of more local importance and are smaller in scale, which may not necessarily be designated at a national level, but which should be avoided where possible.

3.16 The study area also includes consideration of matters such as altitude and slope gradients, over which technical limitations would mean a route was unachievable.

3.17 The route options are then appraised against environmental and technical criteria, including the length of the proposed route option.

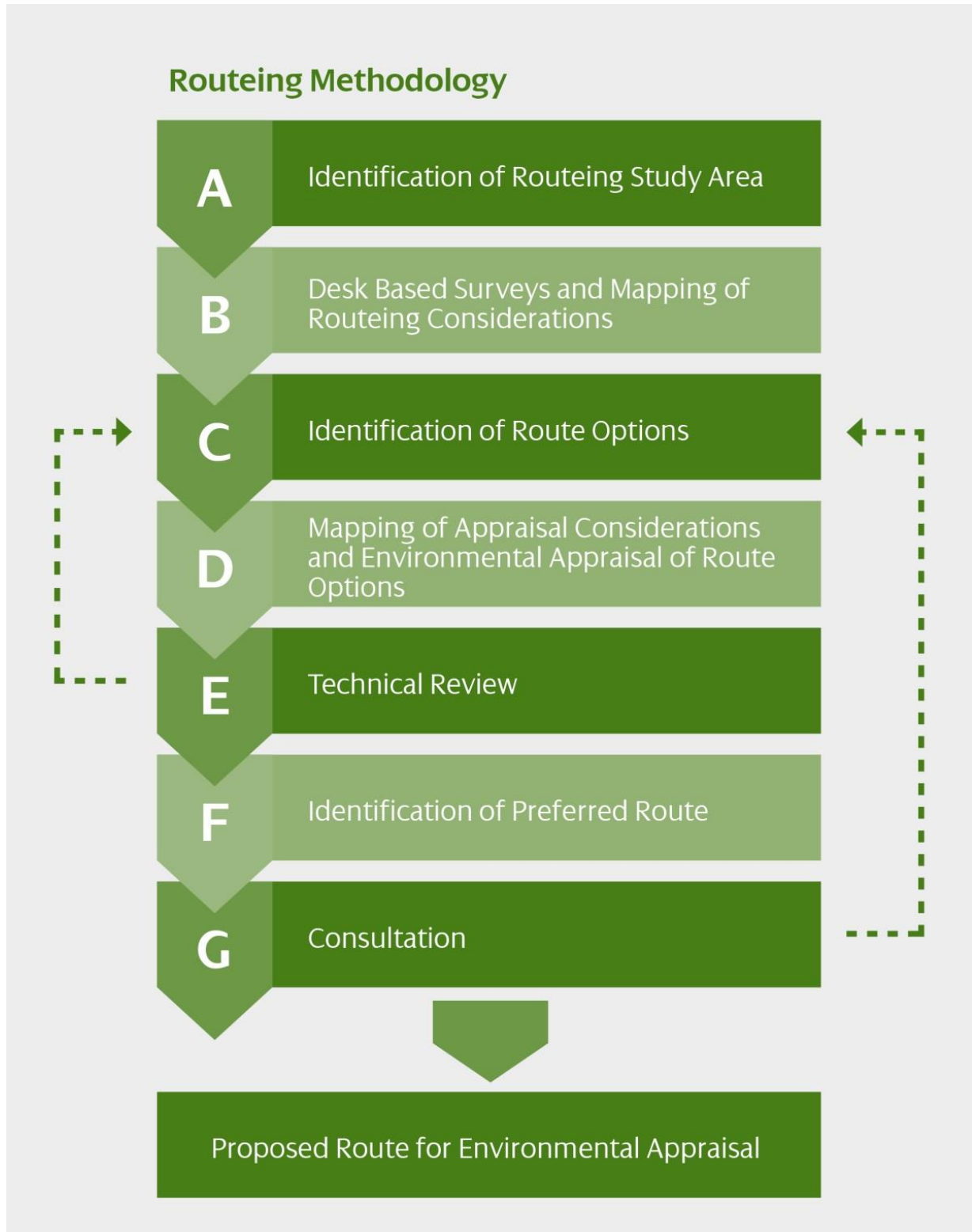
Selection of the Preferred Route

3.18 The comparative appraisal of route options leads to identification of an 'emerging preferred route' which is subjected to a technical review to confirm that the emerging preferred route is technically feasible. Following the technical review, with associated revisiting or modification of routes as necessary, the 'preferred route' is selected.

3.19 The preferred route is the option which is considered technically feasible and economically viable whilst causing the least disturbance to the environment and to people. This is then taken forward for stakeholder and public consultation. The preferred route is subjected to further consideration in response to public consultation and may be modified further in the light of these consultations. Modifications may result in further consultation if necessary.

3.20 The preferred route, modified to take into account consultations and the consideration of specific local issues, is then confirmed as the 'proposed route'. The proposed route is subjected to further environmental survey, detailed design and subsequent environmental appraisal/impact assessment, resulting in the further modifications required to avoid and/or minimise effects on the environment.

Figure 3.1: Routeing Methodology



Chapter 4

Identification of Route Options

The Project Routeing Strategy

4.1 The routeing strategy, which has informed the identification and appraisal of the route options is:

“Route options will seek to avoid areas of highest amenity value and sensitivity as far as possible. Routeing will respond to the grain of the local landscape, avoiding the highest ground and making use of appropriate crossing points along the smaller scale valley of the Leader Water. Routeing will also seek to avoid cumulative effects in association with existing 400kV and 132kV overhead lines in the area. In more populated areas and where there are other competing environmental and/or technical constraints, the weighting and balancing of these constraints will be given careful consideration.”

The Study Area

4.2 The first step in the routeing process involved identification of the study area, predominantly for the purposes of gathering data specific to the project area. In identifying the study area, it was important to ensure that this was large enough to accommodate all likely route options reflecting the Routeing Objective and Routeing Strategy.

4.3 On this basis, the study area was required to be able to accommodate a continuous 132kV OHL from Galashiels substation to Eccles substation. Due to the presence of other OHLs connecting into the Galashiels/Eccles substation(s), the study area also required to take account of these existing OHLs (i.e. ‘AT’ and ‘U’ routes).

4.4 A preliminary check was also carried out to identify the presence of International, European or Nationally Designated areas within or immediately adjacent to, the study area, to ensure that potential effects on these areas could be considered. Taking account of the above, and also informed by topography, the maximum area across which the route options were likely to be located was identified. The study area is shown in **Figure 4.1**. An overview of the study area characteristics is provided below.

Study Area Description

4.5 The study area extends broadly between Galashiels substation to the north of Galashiels in the west and Eccles substation to the north-west of Coldstream in the east. The

study area covers an area of approximately 26,000ha and is contained within the Scottish Borders council area. Much of the study area is rural in nature, comprising agricultural land, hedgerows and areas of woodland. However, the south-western extent of the study area includes land within the settlement areas of Galashiels and Kelso. Individual properties, farmsteads and small clusters of properties are also widespread throughout the study area.

4.6 The landscape of the study area is characterised by more elevated, pasture-covered undulating hills to the west and north, while to the south and east flatter, lower-lying farmland with occasional isolated hills dominates. The elevation range across the study area is from approximately 80m AOD at the south-eastern reaches to approximately 293m AOD at Kedsle Hill to the north of Galashiels.

4.7 There are a number of watercourses within the study area, including the Leader Water which flows from north to south near the western extent of the study area, and the Eden Water which flows east and south through central and eastern parts of the study area, and joins the River Tweed just south of the study area boundary.

4.8 In terms of land use the study area comprises mainly agricultural land with areas of broadleaf and mixed woodland, as well as pockets of coniferous forestry. Loosely rectangular to irregular fields are bound by low stone walls, hedgerows, shelterbelts and blocks of woodland.

4.9 The existing electricity transmission network within the study area includes the existing 132kV 'U' route, which runs eastwards from Galashiels substation, crossing the Leader Water to the north of Earlston. It then passes over lower ground through the centre of the study area and enters Eccles substation in the east. The wood pole 'AT' route crosses through the southern part of the study area, to the south of the 'U' route. It runs east from Galashiels substation and crosses the Leader Water to the south of Earlston before passing between Black Hill and Redpath Hill. This section of the route in crossing the Leader Water passes through the Eildon and Leaderfoot National Scenic Area (NSA). The route then travels north-east, crossing higher ground around Sweethope Hill before meeting the 'U' route to the north of Eccles. The 'ZA' 400kV route also passes through the study area. Emerging from the Eccles substation and running east to west with sections in the east of the study area running in parallel to the existing 'U' line. South of the small settlement of Gordon, the 'ZA' route diverges north away from the 'U' route.

4.10 There are no existing or approved wind farms within the study area. There are however, multiple single operational turbines located within the study area, for example, the single

operational turbine at Bassendean Hill, near the northern boundary of the study area. The operational Longpark Wind Farm is located approximately 3km to the west of the study area.

4.11 The main communication routes within the study area comprise:

- The A68 which connects the Edinburgh City Bypass with the A69 near Corbridge in Northumberland, and passes from north to south through the west of the study area;
- The A697 which connects the A1 near Morpeth with the A68 to the north of Lauder, and passes through a small easterly section of the study area near Eccles substation;
- The A6105 which connects the A68 with the A697, and passes in a north-easterly direction through the centre of the study area;
- The A6089 which connects Kelso with the A697, and passes in a broadly north-westerly direction through the centre of the study area; and
- Various B roads including the B6397, the B6461 and the B6364.

Planning Policy Context

Local and Strategic Planning Policy

4.12 The Local Development Plan (LDP) covering the study area is the Scottish Borders Council Local Development Plan (2016).

4.13 The LDP is a strategic land use plan that sets out strategic spatial priorities and policies for the Scottish Borders and will secure land for specified uses (e.g. housing/industry etc.) to provide certainty for development. The Local Development Plan replaces the Scottish Borders Consolidated Local Plan as the Council's adopted development plan.

4.14 The Scottish Borders Council have also approved a new Proposed LDP which sets out land use proposals and planning policies which are intended to guide development and inform planning decisions within the Scottish Borders council administrative area over the next ten years. The Proposed LDP is yet to be reviewed through the examination process or formally adopted by Scottish Borders Council, and it is expected that this process will be completed by Spring 2022⁵.

⁵ Scottish Borders Council, 2020, Development Plan Scheme. Available [online] at:

https://www.scotborders.gov.uk/downloads/file/3352/development_plan_scheme_2019

National Planning Policy

4.15 The Third National Planning Framework (NPF3)⁶, which was laid in the Scottish Parliament on 23rd June 2014, is the spatial expression of the Scottish Government's Economic Strategy and plans for infrastructure investment and development priorities over the next 20 to 30 years.

4.16 NPF3 strengthens the link between strategy and delivery through 14 national development priorities identified within Annex A. In relation to development priority number four of Annex A, 'An Enhanced High Voltage Electricity Network', the statement of need is as follows: *"These classes of development are needed to support the delivery of an enhanced high voltage electricity transmission grid which is vital in meeting national targets for electricity generation, statutory climate change targets, and security of energy supplies."*

4.17 In terms of the description of Classes of Development it includes, new or upgraded onshore electricity cabling of or in excess of 132kV. The OHL forming part of the Galashiels to Eccles 132kV OHL Replacement Project constitutes national development. The need for the OHL is therefore established.

4.18 The updated Scottish Planning Policy (SPP)⁷ document was published in June 2014 and is a statement of Scottish Government policy on development and land use planning. Paragraph 156 states that *"strategic development plans should support national priorities for the construction or improvement of strategic energy infrastructure, including generation, storage, transmission and distribution networks."*

4.19 National Planning Framework 4 (NPF4) is currently being reviewed by the Scottish Government and will incorporate SPP to allow spatial and thematic policies to be addressed in one document. NPF4 will have development plan status which will place a stronger emphasis on NPF4 policies in decision-making. It is expected that NPF4 will provide improved alignment with wider national programmes and strategies, which will include infrastructure and economic investment in addition to addressing the meeting of targets relating to the reduction of greenhouse gas emissions.

4.20 A draft NPF4 is targeted to be laid before the Scottish Parliament in Autumn 2021, with final adoption in Spring 2022.

Identification and Mapping of Routeing Considerations

4.21 The Holford Rules are broadly hierarchical, with Rule 1 deemed the first rule to be considered in routeing. Rule 1

relates to the avoidance, where possible, of *"major areas of highest amenity value"*. Holford Rule 2 makes the following recommendation: *"avoid smaller areas of high amenity value or scientific interest by means of deviation"*.

4.22 As the Holford Rules do not define what constitutes a major area (Rule 1), and the importance of the area is irrespective of size, smaller areas of highest amenity value were also mapped at this stage alongside larger areas.

4.23 The Holford Rules do not identify which designated areas constitute areas of *highest amenity value*. However, SHETL clarification note b) (see **Appendix A**) states that areas of highest amenity value *"require to be established on a project-by-project basis considering Schedule 9 of the Electricity Act, 1989"*, and provides examples to be considered.

4.24 In this routeing study, the term 'environmental' has also been used in place of 'amenity' (with the exception of residential amenity) to reflect more recent thinking which also seeks to recognise the intrinsic value of such areas.

4.25 On this basis, 'areas of highest environmental value' (Holford Rule 1) located within the study area, and therefore considered within this stage of the routeing process, include the national level designations listed below, and shown on **Figure 4.2**⁸:

- Sites of Special Scientific Interest (SSSIs): SSSIs are defined in the Wildlife and Countryside Act 1981, as amended, as areas of land or water which are of special interest by reason of their flora, fauna or geological or physiographical features.
- Special Areas of Conservation (SACs): SACs are protected European sites within the UK, designated under the European Council Directive 92/42/EEC on the conservation of natural habitats and of wild fauna and flora, also known as the 'Habitats Directive'. Such areas have been identified as best representing the range and variety of habitats and (non-bird) species which are considered to be most in need of conservation at a European level, listed in Annexes I and II of the Directive.
- Scheduled Monuments (SMs): SMs are monuments of national importance, given legal protection under the Ancient Monuments and Archaeological Areas Act 1979.
- Inventory-listed Gardens and Designed Landscapes (GDLs): nationally important for their cultural significance are identified in the Inventory of Gardens and Designed

⁶ The National Planning Framework (2014) available [online] at: <http://www.gov.scot/Publications/2014/06/3539>

⁷ Scottish Planning Policy available [online] at: <https://beta.gov.scot/publications/scottish-planning-policy/pages/2/>

⁸ Designations which would constitute Areas of Highest Environmental Value but are not located within the study area are not discussed, including international and European level designations.

Landscapes in Scotland and are highlighted for their national importance within the Historic Environment Policy for Scotland (HEPS).

- Listed Buildings (LBs): Listed Buildings are protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.

4.26 Whilst GDLs are non-statutory, they are referred to in the notes accompanying Holford Rule 1 and are a material consideration in the planning process. On this basis, these designated areas are included as areas of highest environmental value.

4.27 As noted in **Chapter 3**, for some projects, it can be helpful to introduce additional considerations into the appraisal to help inform the selection of a preferred route option. These may be of more local importance and smaller in scale.

4.28 The SHETL note a) on Holford Rule 2 (see **Appendix A**) states these areas of “*regional or local high amenity value*” should be identified from Development Plans. For this routeing study, the other areas which have been considered are shown on **Figure 4.2** and include:

- Scottish Wildlife Trust Reserves (SWTRs).
- Scottish Borders Indicative Local Wildlife Sites (LWS).
- Areas of Ancient Woodland (AW) as defined by the Ancient Woodland Inventory (AWI).
- Areas of Native Woodland of Scotland (NWS) as defined by the National Woodland Survey of Scotland (NWSS).
- SNH Priority Peatland Habitats (Classes 1 and 2).
- Geological Conservation Review (GCR) Sites.

4.29 These have been mapped where present and treated as ‘avoid where possible’, or where not possible, ‘balance with other considerations’.

4.30 Supplementary Note a) of the Rules relates to residential areas, stating “*avoid routeing close to residential areas as far as possible on grounds of general amenity*”.

4.31 Settlements within the study area, defined as towns and villages identified within the LDP, comprise Earlston, Eccles, Ednam, Galashiels, Gordon, Nether Blainslie, Redpath, Smailholm, Stichill and Tweedbank. A small area on the edge of Kelso is within the study area boundary.

4.32 Proximity to properties is not an absolute constraint to routeing at this stage, and some properties are within the mapped route options. However, larger groups or dispersed clusters of properties that might present a ‘pinch point’ for detailed alignment at later stages have been avoided as far as possible.

4.33 The existing and proposed OHL connection network has been considered in terms of operational 400kV and 132kV OHLs, and the cumulative effects that could arise from crossing points and parallel OHLs. In addition, the existing ‘U’ route has been considered as the basis for a replacement route, on the grounds that this area already hosts a steel lattice-tower OHL. The angle of slope for the placement of steel towers are mapped comprising >22 degrees for steel towers. The slope angle and topography of the study area is also shown on **Figure 4.1**.

4.34 Committed developments, including wind farm proposals, will be kept under review as these could form an environmental constraint to routeing, and also as a technical constraint due to the requirement for a separation distance between turbines and the OHLs.

4.35 A full list of environmental considerations included in the route options appraisal is included in **Appendix B**.

Identification of Route Options

4.36 Given the nature of overhead transmission lines, the primary environmental effects are likely to be landscape and visual effects. The best way to limit adverse effects on landscape and visual amenity is by careful line routeing, led by landscape architects, based on professional judgement, best practice guidance and informed by fieldwork.

4.37 Holford Rules 1 and 2, as described above, formed the basis for the landscape led identification of route options. In addition, Rules 4 and 5 of the Holford Rules identify that OHL infrastructure is judged to be more widely visible from surrounding areas when located on higher ground, for example ridges and skylines. Holford Rule 3, which states that, other things being equal, the most direct line should be chosen with no sharp changes in direction, is also taken account of in identifying route options.

4.38 SPEN’s approach to routeing the Galashiels to Eccles 132kV OHL Replacement Project has been to adopt a ‘blank sheet’ approach which does not solely reflect the routes of the existing ‘AT’ and ‘U’ routes. This approach has ensured that all potential route options are identified and appraised. This also ensures existing routes are considered during the routeing stage as they are already assimilated into the landscape.

4.39 The study area was analysed to establish a number of possible ‘route options’. This process involves the avoidance where possible of designated areas of high environmental value, as well as technical constraints, as noted above.

4.40 The route options are then appraised against environmental and technical criteria, including the length of the proposed route option, and the likely impacts on the considerations identified during the development of route

options. By definition, the route of the line must be continuous and as a consequence, the environmental advantages for routeing in one area may be offset by the disadvantages of routeing through an adjoining area.

4.41 Following a desk-based mapping exercise to define potential route options based on the environmental and technical constraints, a site visit was undertaken by LUC's landscape architects in December 2020 to further refine the potential route options for taking forward to the appraisal stage. It was noted that the existing 'U' route is relatively well assimilated into the landscape, and that this route could form the basis of a route option for the new OHL, which will be of a similar steel-lattice construction. The wood pole 'AT' route passes close to scheduled monuments and crosses the Mellerstain GDL, as well as passing through the Eildon and Leaderfoot NSA. The 'AT' route is not therefore considered suitable to be replicated by the new steel lattice tower route.

Description of Route Options

4.42 Each of the route options was given a numerical reference (1a, 1b, 2 and 3). All route options have the same connection points commencing at the Galashiels substation and terminating at the Eccles substation. The identified route options are shown in **Figure 4.3** and described below.

Route Options 1a and 1b

4.43 Route Options 1a and 1b (see **Figure 4.3a**) follow the same alignment for the majority of their length. From the existing Galashiels substation, Route Options 1a and 1b travel north across higher ground on the valley sides of the Allan Water before turning east to the north of Kedslie Hill and crossing the Leader Water near Birkhill. Both routes then continue east, following lower ground through the valley of the Legerwood Burn before splitting apart to route around an area of higher ground around Knock Hill and West Hill (Route Option 1a routes to the north of the higher ground area; Route Option 1b routes to the south). These two options then come together again to continue east across lower ground towards the north of the study area, passing south of Rumbleton Law before linking into the existing Eccles substation from the north-west.

Route Option 2

4.44 This route option broadly follows the existing 'U' route. From the existing Galashiels substation, the route passes north and north-east over undulating hills, crossing the Leader Water to the north of Earliston. It then passes north-east over hills to the north of Mellerstain GDL. The route continues east and south-east over an area of gently undulating lowland through the centre of the study area before linking into the existing Eccles substation from the west. (see **Figure 4.3b**)

Route Option 3

4.45 From the existing Galashiels substation, the first section of this route option follows the same alignment as Route Option 2. This route option diverges from Route Option 2 to the east of Earliston, and routes south-east over undulating farmland between the Eildon and Leaderfoot NSA and Mellerstain GDL. It then crosses north-east passing hill top scheduled monuments, including Sweethope Hill, to the north, and clusters of properties at Nenthorn and Stichill to the south. It follows the same alignment as the eastern extent of Route Option 2 to the north of Eccles, linking into the existing Eccles substation from the west (see **Figure 4.3c**).

Figure 4.1: Study Area

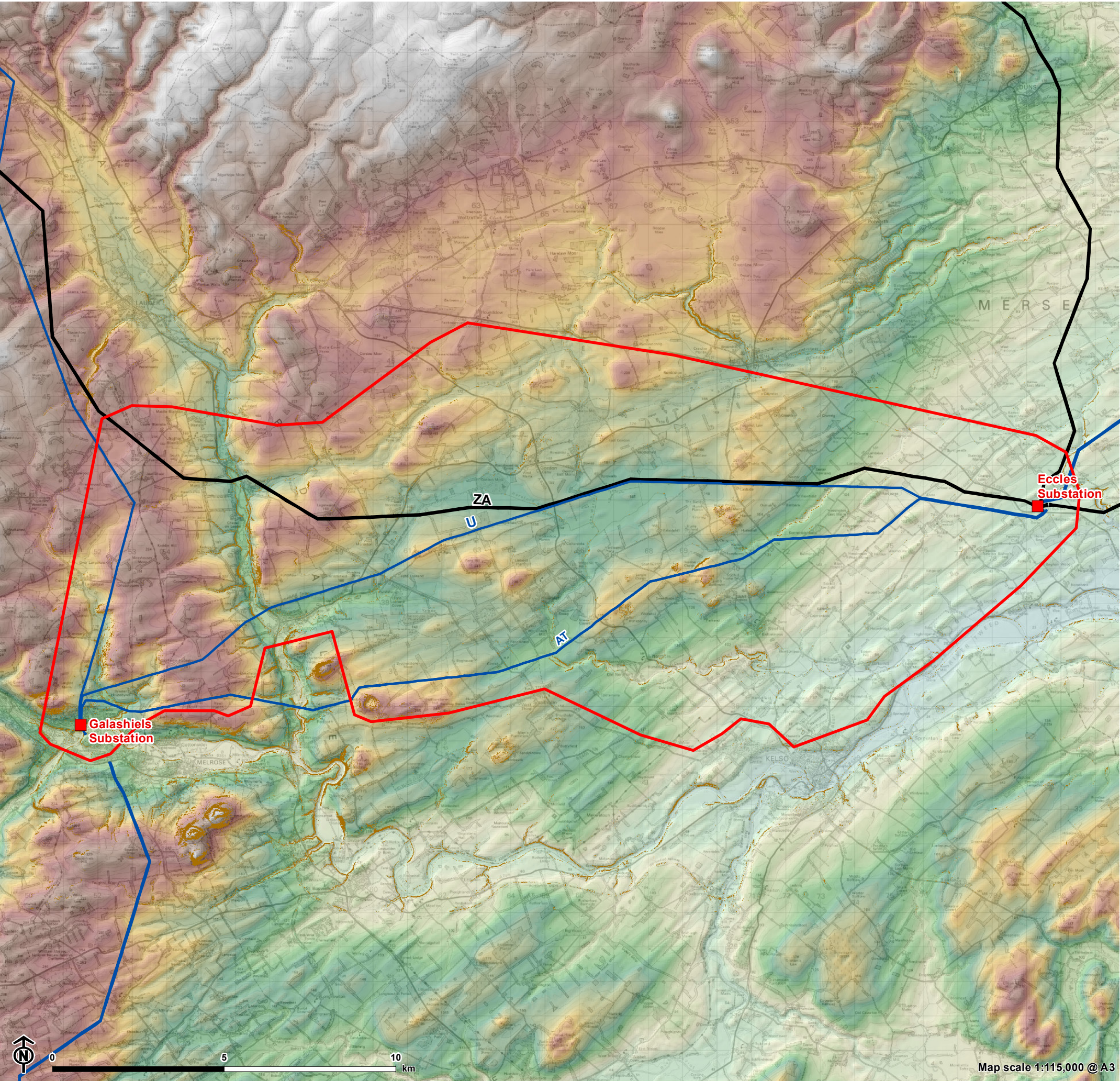
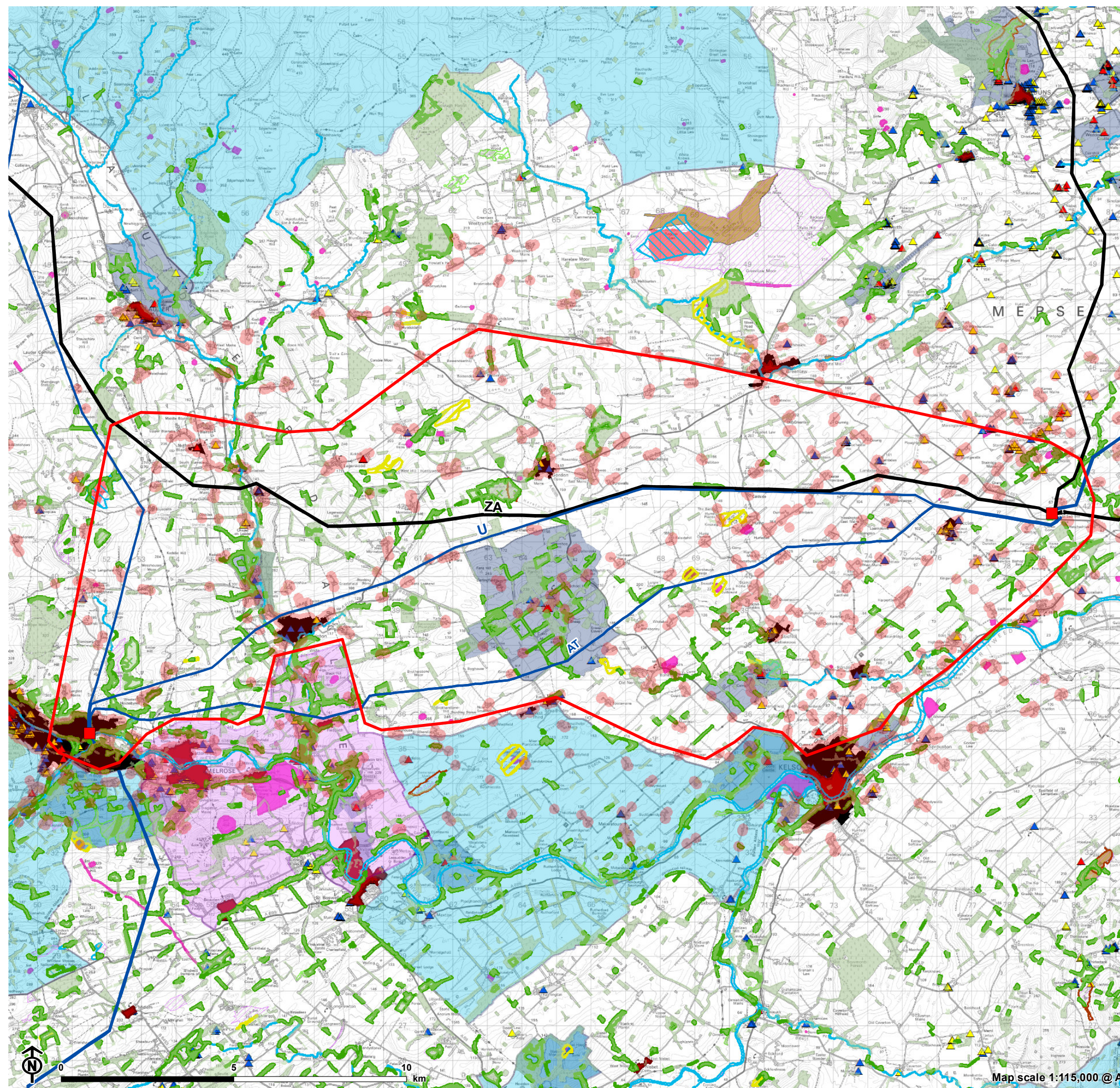
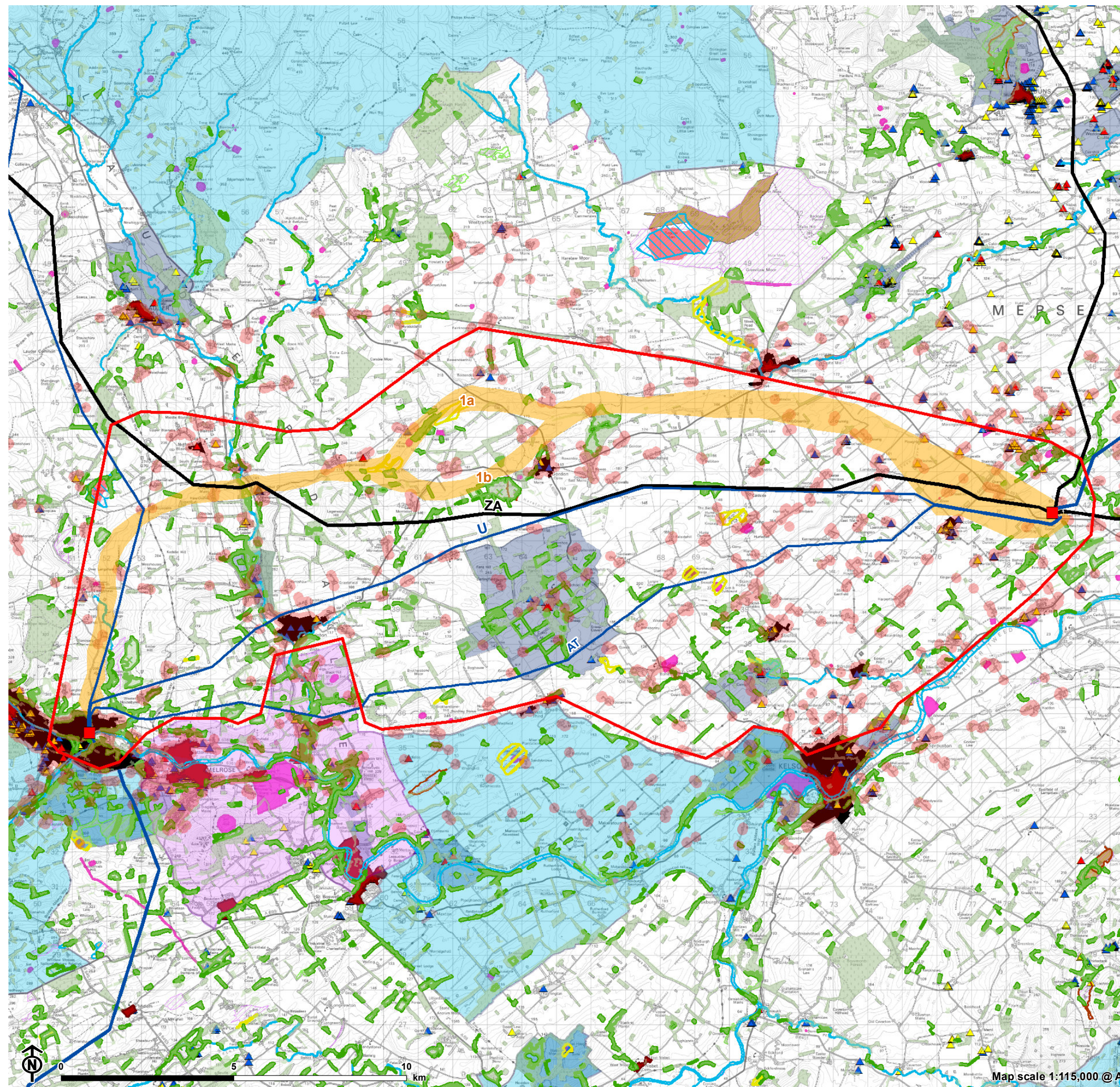


Figure 4.2: Routeing Considerations



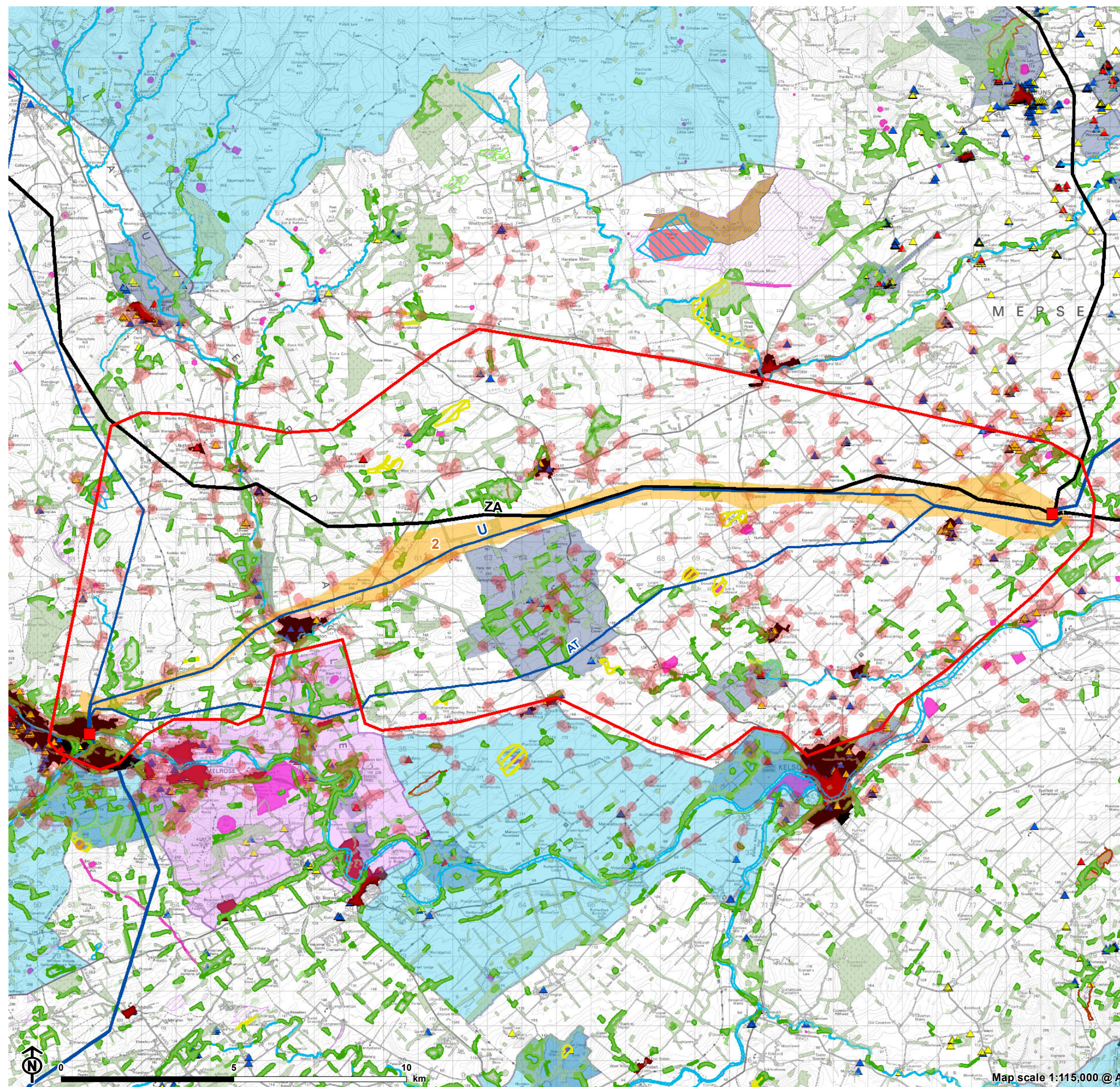
- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- Settlement boundaries
- Residential trigger for consideration (150m buffer)
- National Forest Inventory
- X X Native Woodland Survey of Scotland (NWSS)
- Ancient Woodland
- Category 1 Carbon Peatland
- Geological Conservation Review (GCR) Site
- Local Wildlife Site (Indicative)
- Scottish Wildlife Trust Reserve
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Scenic Area
- Special Landscape Area (indicative)
- Conservation Area
- ▲ Category A listed building
- ▲ Category B listed building
- ▲ Category C listed building
- Scheduled Monument
- Garden and Designed Landscape

Figure 4.3a: Route Option 1a and 1b



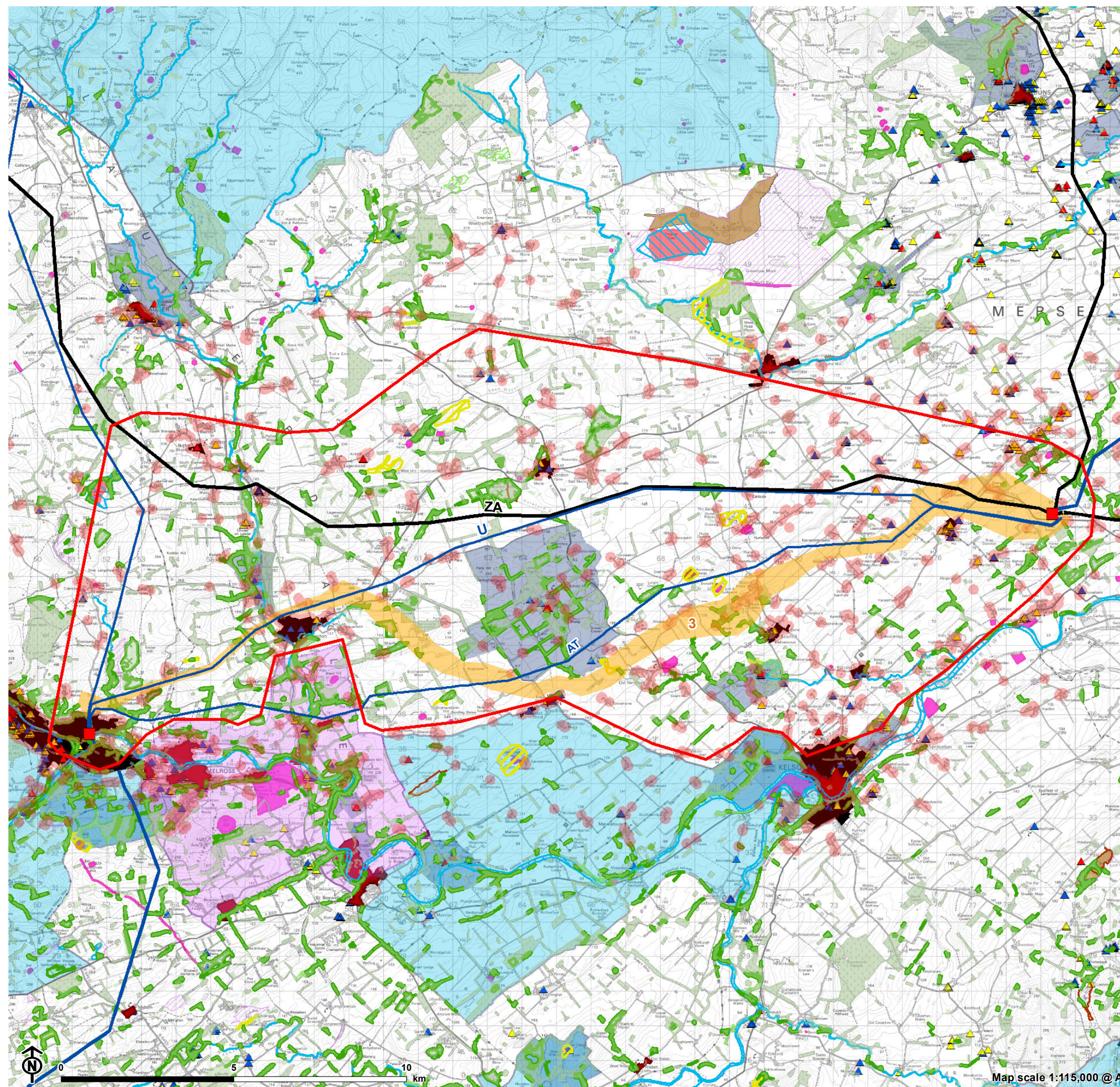
- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- Route 1
- Settlement boundaries
- Residential trigger for consideration (150m buffer)
- National Forest Inventory
- Native Woodland Survey of Scotland (NWSS)
- Ancient Woodland
- Category 1 Carbon Peatland
- Geological Conservation Review (GCR) Site
- Local Wildlife Site (Indicative)
- Scottish Wildlife Trust Reserve
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Scenic Area
- Special Landscape Area (indicative)
- Conservation Area
- Category A listed building
- Category B listed building
- Category C listed building
- Scheduled Monument
- Garden and Designed Landscape

Figure 4.3b: Route Option 2



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- Route 2
- Settlement boundaries
- Residential trigger for consideration (150m buffer)
- National Forest Inventory
- Native Woodland Survey of Scotland (NWSS)
- Ancient Woodland
- Category 1 Carbon Peatland
- Geological Conservation Review (GCR) Site
- Local Wildlife Site (Indicative)
- Scottish Wildlife Trust Reserve
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Scenic Area
- Special Landscape Area (indicative)
- Conservation Area
- Category A listed building
- Category B listed building
- Category C listed building
- Scheduled Monument
- Garden and Designed Landscape

Figure 4.3c: Route Option 3



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- Route 3
- Settlement boundaries
- Residential trigger for consideration (150m buffer)
- National Forest Inventory
- Native Woodland Survey of Scotland (NWSS)
- Ancient Woodland
- Category 1 Carbon Peatland
- Geological Conservation Review (GCR) Site
- Local Wildlife Site (Indicative)
- Scottish Wildlife Trust Reserve
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- National Scenic Area
- Special Landscape Area (indicative)
- Conservation Area
- Category A listed building
- Category B listed building
- Category C listed building
- Scheduled Monument
- Garden and Designed Landscape

Chapter 5

Appraisal of Route Options

Approach to Appraisal of Route Options

5.1 The objective of the appraisal of the route options was to identify a preferred route for the Galashiels to Eccles 132kV OHL Replacement Project, in a comparable, documented and transparent way to identify an overall preferred route option.

5.2 As outlined in the Routeing Strategy, where the characteristics of the study area were such that they required to be balanced to enable the overarching Routeing Objective to be met, professional judgement, informed by both desk studies and field work, and reflecting the Holford Rules, was employed to identify the preferred route. This professional judgement was made on a case by case basis.

5.3 The process also sought to:

- continue to reflect the overall Routeing Objective and Routeing Strategy;
- continue to reflect SPEN's Approach to Routeing and EIA document;
- continue to reflect the Holford Rules for Routeing Overhead Transmission Lines; and
- draw out distinctions between the routes to enable the relative strengths and weaknesses of each to be identified.

5.4 The comparative appraisal of route options was undertaken in stages as set out below:

- identification of appraisal criteria, together with their reasoning for inclusion;
- application of appraisal criteria to each route option, following the appraisal methodology;
- comparative appraisal of route options to identify a preferred route;
- SPEN technical review, reflecting system design requirements.

Appraisal Criteria

5.5 Based on the established practice for the line routing and the routeing considerations for the project, the route options were appraised using the following criteria, which

continue to reflect the key considerations of the routing methodology:

- Length of Route;
- Landscape and Visual Amenity;
- Hydrology,
- Forestry and Woodland;
- Biodiversity and Geological Conservation;
- Cultural Heritage;
- Land Use; and
- Technical constraints.

5.6 The reasoning for the use of these criteria and an outline of the methodology for appraising each route option is set out below. The appraisal criteria are presented in **Appendix B**. Where an environmental factor was not located within the study area, or did not influence the appraisal, it is not included within **Appendix B** or the appraisal tables.

Length of Route Option

5.7 Holford Rule 3 states that “*other things being equal choose the most direct line*”. Although this rule primarily relates to avoiding sharp changes in direction, and therefore the need for more visually intrusive angle towers, choosing the most direct route may result in fewer adverse effects, than a longer, less direct route (taking due consideration of other constraints).

Landscape and Visual Amenity

5.8 Consideration of landscape sensitivity, with reference to both the susceptibility of the landscape to the type and scale of OHL development proposed and the value attributed to the landscape through formal designation or otherwise, using published baseline landscape character information.

5.9 The Nature Scot (formerly SNH) digital map-based national Landscape Character Assessment (published in 2019) has been used as the basis for determining the susceptibility of Landscape Character Types (LCTs) across the study area. This was supplemented by information contained within published landscape capacity studies and observations made during fieldwork to appraise the relative landscape ‘fit’ of each broad corridor option.

5.10 The LCTs found across the study area are shown on **Figure 5.1**, and the findings of the landscape susceptibility appraisal are presented in **Appendix C**.

5.11 There are no landscape designations comprising ‘areas of highest environmental value’ (Holford Rule 1) or ‘high’ environmental value (Holford Rule 2) within the study area.

However, there are a number of nationally and locally designated landscapes to the immediate south of the study area boundary, including the Eildon and Leaderfoot National Scenic Area (NSA) and the Tweed Lowlands Special Landscape Area (SLA), as shown on **Figure 5.2**.

5.12 Non-residential visual amenity as experienced by those in the wider landscape, e.g. travelling along roads/ tracks and working in the landscape, was also a factor in the appraisal of route options. This allowed consideration of topography, potential backclothing and visual prominence to be considered (similar to Holford Rule 4).

5.13 In relation to residential visual amenity, the following matters were considered: (1) the number of properties within or in proximity to the route option; and (2) where the route option might encroach within 150m from individual properties.

5.14 Consideration was also given to tourism receptors such as promoted/ key recreational viewpoints and promoted routes such as core paths. The Southern Upland Way passes from north to south through the western part of the study area, and National Cycle Route (NCR) 1 passes through the south-eastern reaches of the study area, as shown on **Figure 5.3**.

Hydrology

5.15 In relation to potential conflicts with policy relating to flooding and to avoid potential increase to flood risk, the medium likelihood flooding events were identified using the SEPA online flood mapping tool. This considers a flood event that is likely to occur on average once in every two hundred years (1:200) or has a 0.5% chance of happening in any one year. When appraising the route options, the ability to span the flood zone (average span of 250m for steel towers) was considered. The appraisal considered the potential to cross the flood zone at the narrowest point, all other environmental/ technical considerations being equal.

5.16 The waterbodies/watercourses, which the route options cross, or are in proximity to were also considered during the appraisal process and are shown on **Figure 5.5**.

Forestry and Woodland

5.17 Forest and woodland areas within each of the route options were identified through the use of aerial photography, combined with digital data available from NatureScot (formerly SNH) and Scottish Forestry (SF) sources.

5.18 These forests and woodland were then divided into three groupings:

1. Conifer forest from the National Forest Inventory (NFI) for Great Britain.
2. Ancient Woodland Inventory (AWI).

3. Native Woodlands from the Native Woodland Survey of Scotland (NWSS).

5.19 It is recognised that there is often overlap between 1 and 2 and also between 2 and 3. There is no perceived overlap between 1 and 3.

5.20 Appraisal against the forestry and woodland criterion comprised analysis of the extent and location of each forest and woodland type within the route options to identify net areas for these three forest and woodland types.

5.21 In general terms, the objective in identifying a preferred route is based on identifying the lowest impact for all three types of forest and woodland. This requires a subjective review which places greater weight on reducing the impact on types 2 and 3 ahead of type 1. This reflects the importance of the local resource of these woodland types and as such, the implications of the proposed removal of this type of woodland within the wayleave (area of woodland felled to accommodate the OHL). In addition, for the AWI designated areas, consideration was given as to whether this woodland type was commercial forestry planted on an ancient woodland site, rather than native woodland. Whilst the importance of this is recognised in terms of the opportunity to restore these sites, it is deemed to merit less weight than the removal of NWSS.

5.22 In undertaking the appraisal, consideration was given as to whether or not the AWI and NWSS woodlands can be avoided during the route alignment/EIA stage, assuming that the final wayleave within woodland will be up to 80m in width (i.e. 40m on either side of the OHL). Due to the often scattered and broken nature of natural forests and woodland, there is frequently the opportunity to avoid areas through careful consideration of the line alignment. Consideration will also be given to minimising impacts on forestry and woodland at the route alignment stage, taking account of the need to create long term stable forest edges and to minimise impacts on any forestry and woodland management practices.

5.23 During the alignment/EIA stage consideration will be given to all three forest and woodland types through:

- taking account of existing, and planned, windfirm boundaries to minimise sterilisation of commercial forestry and woodland areas and reduce the requirements for additional felling outwith the wayleave;
- taking account of forest design plans and liaising with forestry owners/managers to avoid, or reduce restrictions on forest management operations/techniques e.g. maintaining access to woodland blocks for harvesting/safety; and
- identification of opportunities to retain and/or plant particularly lower growing shrub species within the wayleave.

5.24 Forestry and woodland resources considered in the appraisal are shown in **Figure 5.4**.

Biodiversity and Geological Conservation

5.25 SNH (now NatureScot) has published a series of maps and guidance documents relating to priority peatlands (Mapping of SNH Carbon Rich Soil, Deep Peat and Priority Peatlands (CPP) (July 2016)). By dividing peatland habitat types into 5 broad 'classes', SNH has mapped those areas of Scotland of greatest value for carbon sequestration through peat formation. Class 1 and 2 peatlands are those which offer greatest restoration and carbon-sequestration potential. The identification of route options has avoided the areas of Class 1 and 2 peatlands, as well as the Geological Conservation Review site. Therefore, these are not included in the appraisal.

5.26 Within the study area, there are international and national designations present (SSSI and SAC sites) as well as regional/local designated sites which are outlined below.

5.27 The appraisal takes into account the following international and national designations located within the study area: River Tweed SAC; Threepwood Moss SAC; Threepwood Moss SSSI; Avenel Hill and Gorge SSSI; Gattonside Moss SSSI; Gordon Moss SSSI; Hareheugh Craigs SSSI; and Lurgie Loch SSSI. There are no Ramsar or SPA sites located within the study area.

5.28 The appraisal also takes into account the following regional/local designated and potential sites located within the study area. These include Scottish Borders Local Wildlife Sites (LWS) and potential Local Wildlife Sites (pLWS): Ellwynd Meadow pLWS; Easter Housebyres Moss pLWS; Brotherstone Moss pLWS; Everett Moss pLWS; Corsbie Bog (Eden Water) LWS; Little & Muckle Thairn pLWS; Hareheugh Craigs pLWS; Sweethope Hill pLWS; Hume Craigs pLWS; Stithill Linn LWS; Bishop's Bog pLWS; and Gordon Moss Scottish Wildlife Trust Reserve.

5.29 An ornithological 'trigger for consideration' zone of 2km is applied around the Hirsell SSSI as this site is designated for birds as the qualifying feature.

5.30 This 2km ornithological 'trigger for consideration zone' is included as a criterion within the appraisal of route options. This has been applied as species constituting the qualifying features of designated sites are likely to be reliant on habitats adjacent to, but outside of, the designated site boundaries, for example, for foraging and in some cases, for nesting. Hence, for individuals of these species, the presence of a route in the designated sites 'trigger for consideration zones' may present a risk of disturbance and collision, and the risk is considered to be proportionate to the length of the route which intersects with this 'trigger for consideration zone'. The appraisal

highlights the length of route which intersects with the 'trigger for consideration zone' and whether this can be avoided during the alignment stage, and/or whether suitable mitigation can be implemented during construction.

5.31 Other species such as breeding Schedule 1 birds (outwith the boundaries of designated sites), European Protected Species (such as otters) and other nationally protected species (such as water vole and badger) will be considered during the detailed alignment and subsequent appraisal/assessment stage, informed by the findings of field surveys. Where designated sites with non-avian qualifying species are located within 1km of a route option, these are noted within the appraisal.

5.32 The appraisal also takes account of SNH Guidance on 'new versus replacement power lines' by favouring route options which align most closely with wayleaves for existing power lines, where these do not encroach on designated sites. This aims to minimise the overall effects on birds as areas currently supporting infrastructure are assumed to be already disturbed and local bird populations may be habituated to the presence of this infrastructure.

5.33 Figure 5.5 shows the biodiversity resources considered in the appraisal.

Cultural Heritage

5.34 The cultural heritage appraisal provides a high-level consideration of effects to the heritage significance of:

- Designated assets identified by Historic Environment Scotland (HES) data; and
- non-designated assets identified using the Scottish Borders Council (SBC) Historic Environment Record (HER),⁹ which is understood to be akin to the Canmore data for the area and which also includes data on locally recognised designed landscapes which have had significance ratings pre-assigned to them.

5.35 The cultural heritage assets included in the appraisal are shown in Figure 5.6.

5.36 In addition to designated Scheduled Monuments and Listed Buildings, many non-designated assets are present within each route option, and could be physically affected. Physical effects have therefore been considered in relation to all assets that intersect the individual route options. All designated assets are of national and therefore high importance. However, given the high-level nature of this

appraisal, the significance of these non-designated assets could not be individually determined and whilst most will be of local importance, some could be of regional or national importance. Setting change – the change to an asset's significance via change to its surroundings - has been considered in relation to designated assets (including scheduled monuments, listed buildings, Inventory Gardens and Designed Landscapes and Inventory Historic battlefields) and locally recognised designed landscapes within a wider 3km study area of each route. No consideration has been given to the setting effects of non-designated assets at this stage. This will be assessed for relevant assets as part of the appraisal/EIA of the preferred route option).

5.37 Given the high-level nature of the appraisal, identification of potential setting effects has been based on an outline understanding of the heritage asset's significance - understood as per the Burra Charter (Australia ICOMOS 2013) values (e.g. aesthetic, historic, scientific or social) which are referenced by the Historic Environment Policy for Scotland (2019) - and the likely contribution of setting to it – as per Historic Environment Scotland's setting guidance (2016).

5.38 No World Heritage Sites have been identified within the study area, and are therefore not considered in the appraisal.

Land Use

5.39 The land use appraisal highlights the potential for direct physical and amenity effects on land where planning applications for development have been approved, i.e. the already 'committed development' within or near the Route Options. When appraising the Route Options, where a route was located within proximity to committed development, i.e. either within the route option (causing direct effects) or within a 150m 'trigger for consideration' zone from the route options (potentially resulting in amenity effects), the implications of this for the alignment and/or subsequent environmental appraisal/assessment stage were highlighted.

5.40 Committed development data for approved and approved on appeal planning applications within a route option or the 150m 'trigger for consideration zone' was sourced from SBC on March 22nd and mapped using GIS. Only approved and approved on appeal planning applications that were submitted from March 2018 onwards were appraised at this stage. This is because applications submitted prior to this date are deemed to be either "on the ground" (i.e. physically present within the landscape) or the planning application will have expired¹⁰. Committed development for approved and

⁹ HER data was obtained in February 2021. SBHER is currently undertaking a programme of polygonization; in agreement with the Archaeological and HER Officer complete data was obtained for the route corridors but not for the wider study areas. This data will be obtained for the further studies once a preferred route has been selected.

¹⁰ Under Section 58 of the Town and Country Planning (Scotland) Act 1997 (as amended), any planning permission granted expires after a period of 3 years beginning with the date on which permission was granted. Generally, unless the planning permission states otherwise, planning permissions expire three years following the date granted to commence development.

approved on appeal applications has been separated into two criteria: approved and approved on appeal applications for residential properties; and approved and approved on appeal applications for other non-residential uses of a size and geographic location to be considered 'major areas'.

5.41 Existing and approved wind farms also constitute 'Committed Development'. There are no existing or consented wind farms within the study area, however, there are existing and approved individual turbines within the study area which have been mapped and taken into consideration during the appraisal. Whilst these are small in scale, and are considered to have limited potential for wake effects, wake effects have been considered in accordance with the Energy Networks Association (ENA) Engineering Recommendation L44 on the Separation between Wind Turbines and Overhead Lines Principles of Good Practice (2012¹¹).

5.42 The land use appraisal also considers the Land Capability for Agriculture (LCA) classification system which is used to rank land based on its potential productivity and cropping flexibility. This is determined by the extent to which the physical characteristics of the land (soil, climate and relief) impose long term restrictions on its use. The LCA classification is applied through a series of guidelines which enables a high degree of consistency of classification between users.

5.43 The LCA is a seven-class system, whereby classes 1, 2 and 3.1 in Scotland are referred to as 'Best and Most Versatile' land (with regards to agricultural productivity) and are afforded a degree of protection from development¹².

5.44 The majority of the eastern extent of the study area is LCA class 3.1 where LCA class 2 is also present. There are no LCA class 1 areas within the study area, therefore, only LCA classes 2 and 3.1 have been taken into consideration during the appraisal. LCA class 2 refers to "land capable of producing a wide range of crops". LCA 3.1 refers to "land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range [whereby] short grass leys are common".¹³

5.45 Furthermore, the land use appraisal considers land which is already designated for a specific purpose, for example, land designated for targeted development as outlined within the Scottish Borders Local Development Plan.

5.46 Figure 5.7 shows the land use features considered in the appraisal.

Technical

5.47 The technical constraints were also reviewed by SPEN. This included consideration of the following parameters:

- **Route Length** (also covered above and separately in the appraisal table at **Appendix D**);
- **Altitude**;
- **Topography** (particularly slopes greater than 22 degrees, however, slopes that were not greater than 22 degrees but steep in nature were also considered as these could be less favourable for routing);
- **Buildability access constraints** (including restrictive roads and forestry access tracks);
- **Crossing of existing OHL transmission and distribution infrastructure** (including the existing 400kV and 275kV OHLs, the existing 132kV 'U' route and 'AT' route (which will be decommissioned following construction of the new Galashiels to Eccles Connection OHL), and other 33kV, 11kV and low voltage (LV) OHLs existing in the landscape);
- **Proximity to existing OHL transmission and distribution infrastructure**;
- **Mineworking areas** (Opencast, etc);
- **Ground conditions** (including peat);
- **Public Service Utilities** (crossings / proximity) (including major pipelines);
- **Watercourse / Catchment areas crossings** (i.e. River, Loch, Reservoir);
- **Road / Railway Crossings along routes**;
- **Wind Farms** (existing);
- **Residential / Industrial Areas**; and
- **Pollution** (consideration of corrosion rates).

5.48 During the review, a specific risk rating (high, medium, or low) was allocated to each parameter for each Route Option. Parameters with low risk ratings for all Route Options were not considered in the appraisal. The appraisal therefore considers the following:

- Altitude and Topography (including slopes);
- Crossing of/ Proximity to existing OHLs; and

¹¹ ENA (2012) Engineering Recommendation L44, Issue 1, Separation between Wind Turbines and Overhead Lines: Principles of Good Practice

¹² Bibby, J.S., Douglas, H.A., Thomasson, A.J. & Robertson, J.S. (1982) Land capability classification for agriculture. Macaulay Land Use Research Institute, Aberdeen

¹³ <https://soils.environment.gov.scot/maps/capability-maps/national-scale-land-capability-for-agriculture/>

- Crossing of/ Proximity to other existing infrastructure, i.e. public service utilities, roads and railways, and residential/industrial areas.

Legend:

- 3: Cheviot Fringe
- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- Route options

Landscape Character Types
(NatureScot 2019)

- 90: Dissected Plateau Moorland
- 91: Plateau Grassland - Borders
- 93: Southern Uplands with Scattered Forest - Borders
- 94: Rolling Moorland
- 97: Rugged Uplands - Borders
- 99: Rolling Farmland - Borders
- 100: Plateau Farmland - Borders
- 101: Rocky Upland Fringe
- 102: Upland Fringe with Prominent Hills
- 103: Undulating Upland Fringe
- 105: Upland Fringe Moorland with Hills
- 106: Lowland with Drumlins
- 107: Rolling Lowland Margin
- 108: Lowland Margin
- 109: Lowland Margin with Hills
- 111: Coastal Pasture
- 113: Upland Valley with Pastoral Floor
- 114: Pastoral Upland Valley
- 115: Upland Valley with Mixed Farmland
- 116: Upland Valley with Woodland
- 117: Pastoral Upland Fringe Valley
- 118: Settled Upland Fringe Valley
- 119: Wooded Upland Fringe Valley
- 120: Lowland Valley with Farmland
- 266: Plateau Moorland - Lothians
- 267: Plateau Grassland - Lothians
- 269: Upland Fringes - Lothians
- 270: Lowland River Valleys - Lothians
- 275: Lowland Farmed Plain - Lothians

Landscape Character Types
(Natural England)

- 3: Cheviot Fringe

Figure 5.2: Landscape Designations

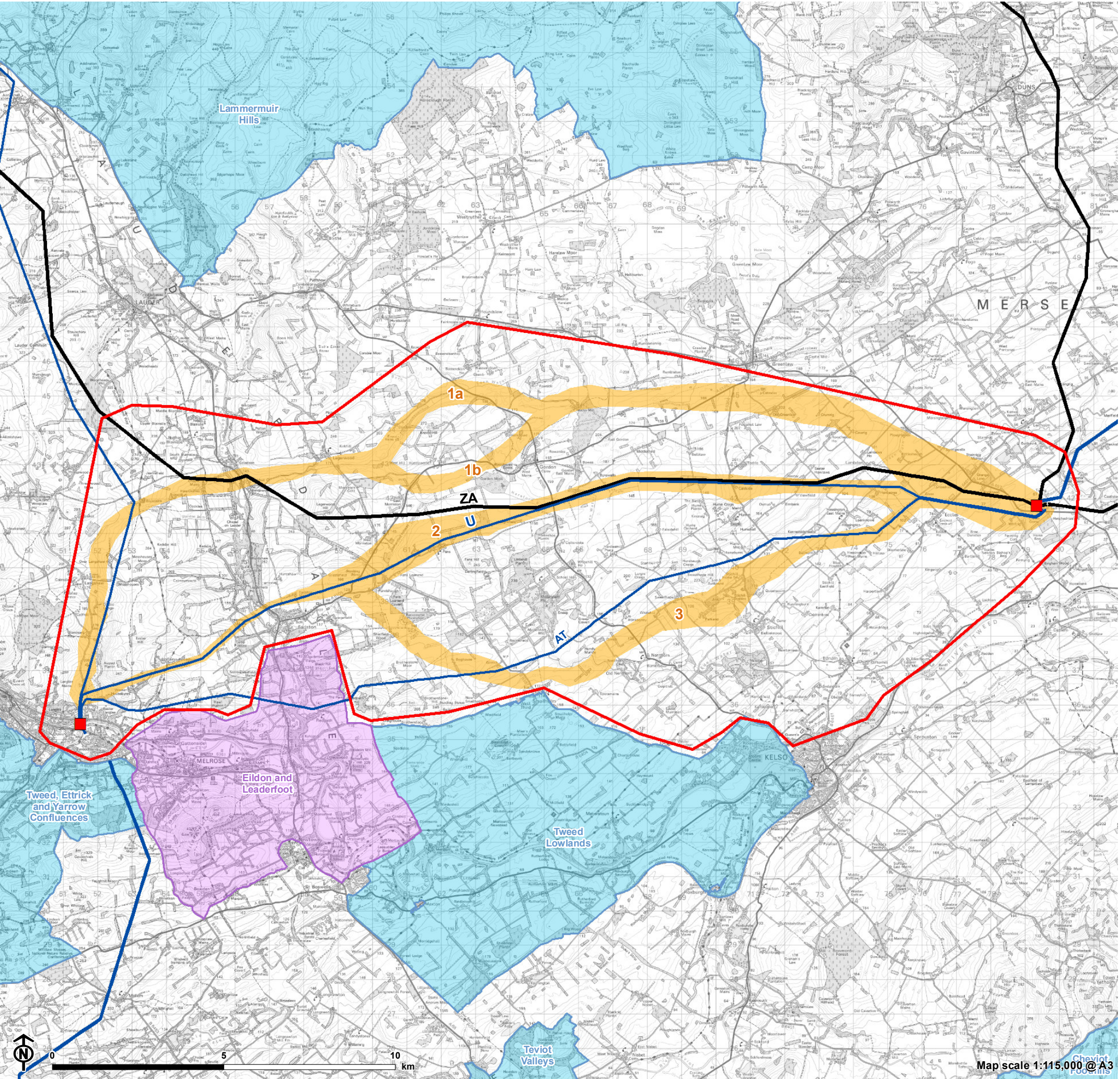
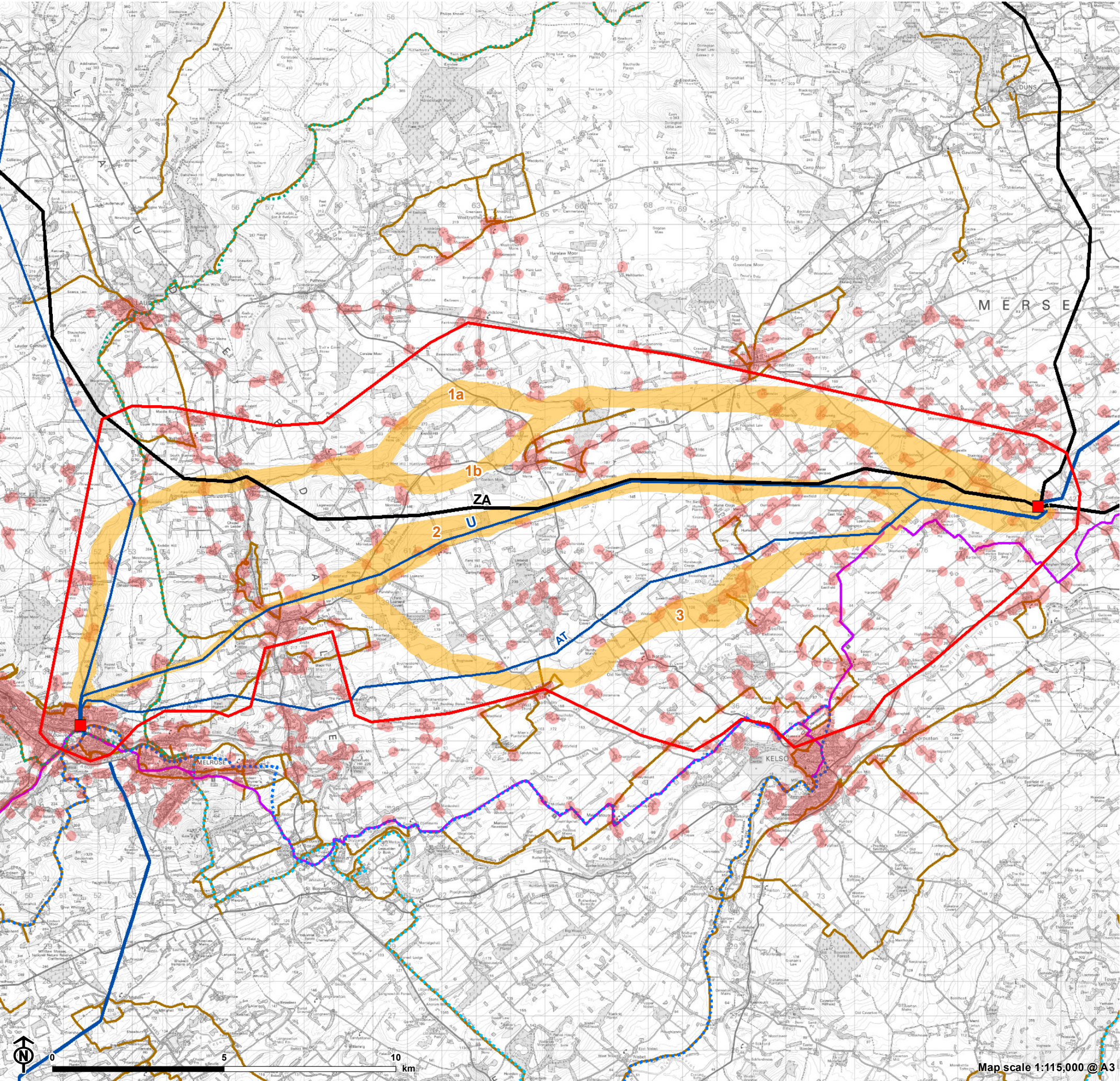
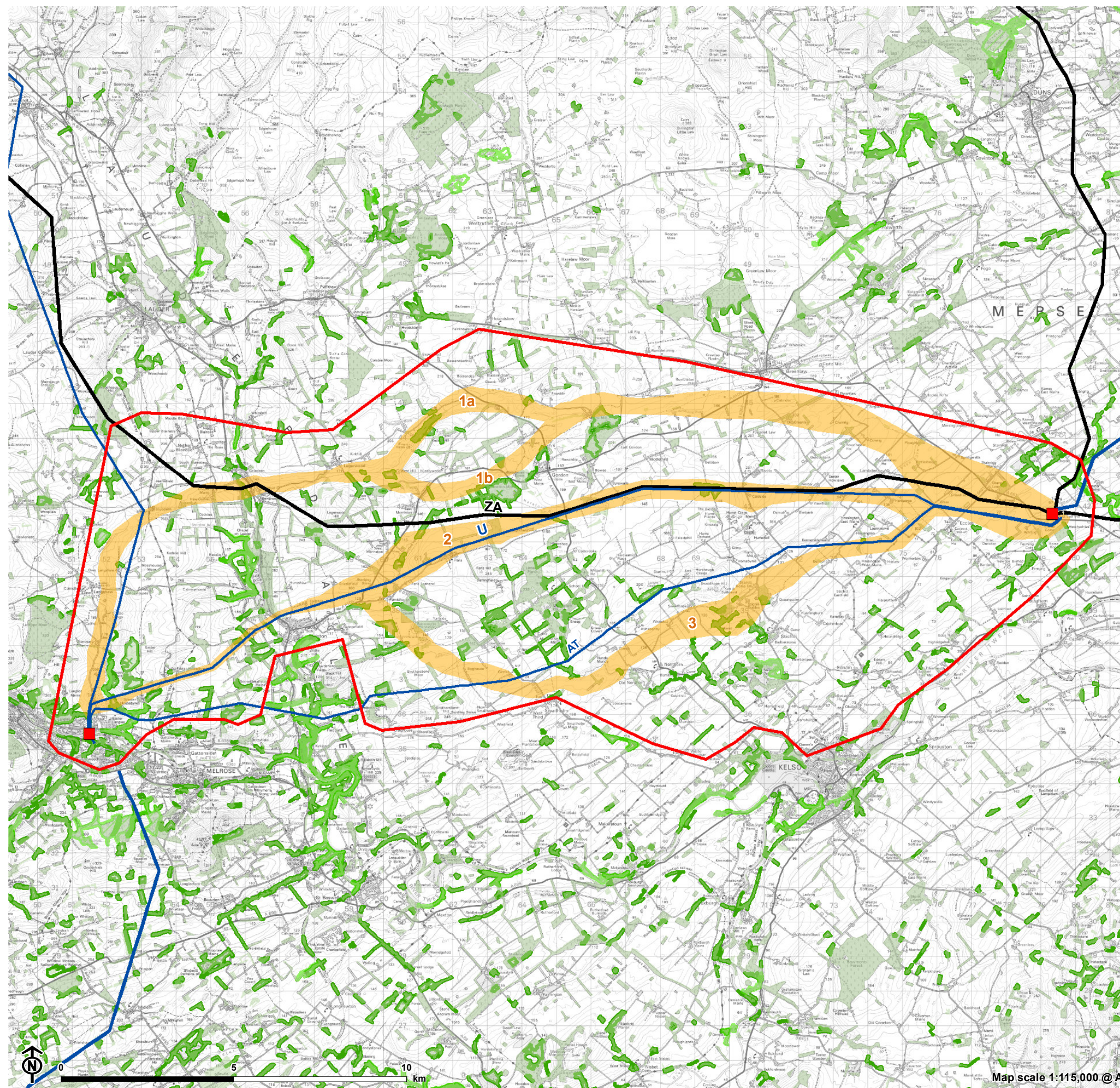


Figure 5.3: Visual Receptors



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- All route options
- 150m buffer of residential addresses
- Borders Abbeys Way
- Southern Upland Way
- St Cuthbert's Way
- National Cycle Network
- Core path

Figure 5.4: Forestry and Woodland



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- All route options
- National Forest Inventory
- Native Woodland Survey of Scotland (NWSS)
- Ancient Woodland

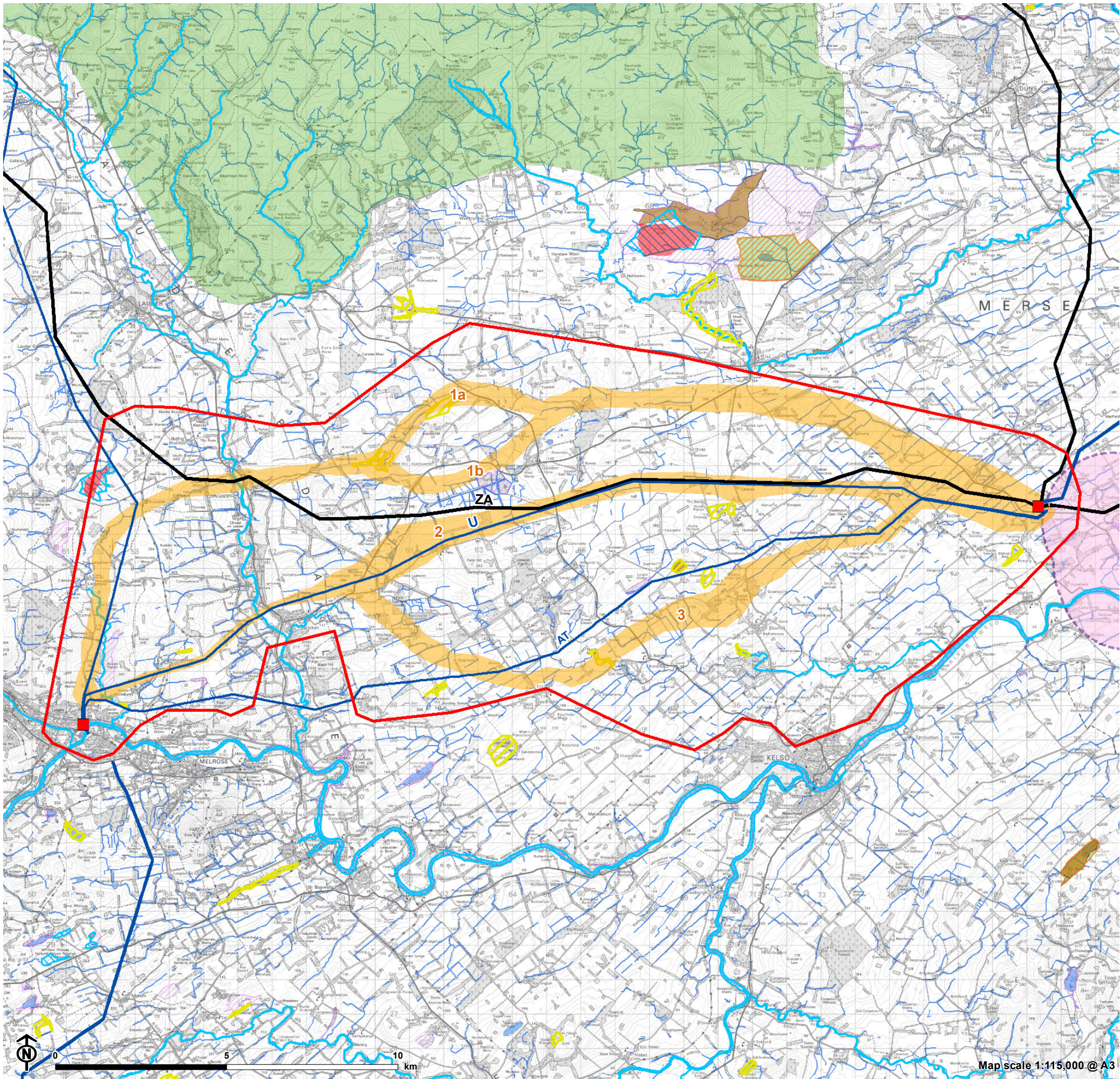
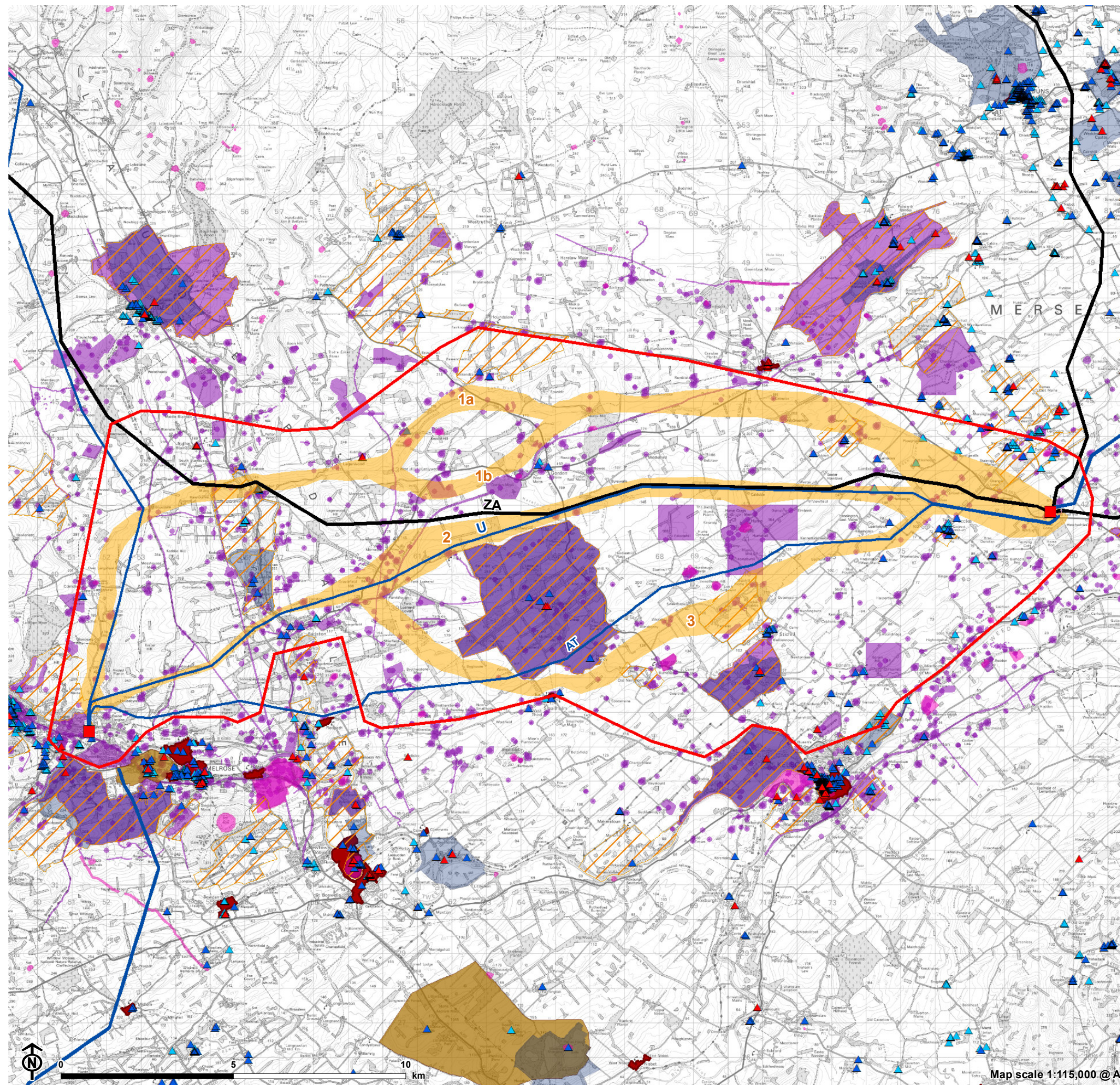


Figure 5.5: Biodiversity, Geological Conservation and Watercourses

- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- All route options
- Geological Conservation Review (GCR) Site
- Local Wildlife Site (Indicative)
- Category 1 Carbon Peatland
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Important Bird Area
- 2km buffer of the Hirsell SSSI
- Watercourse
- Waterbody

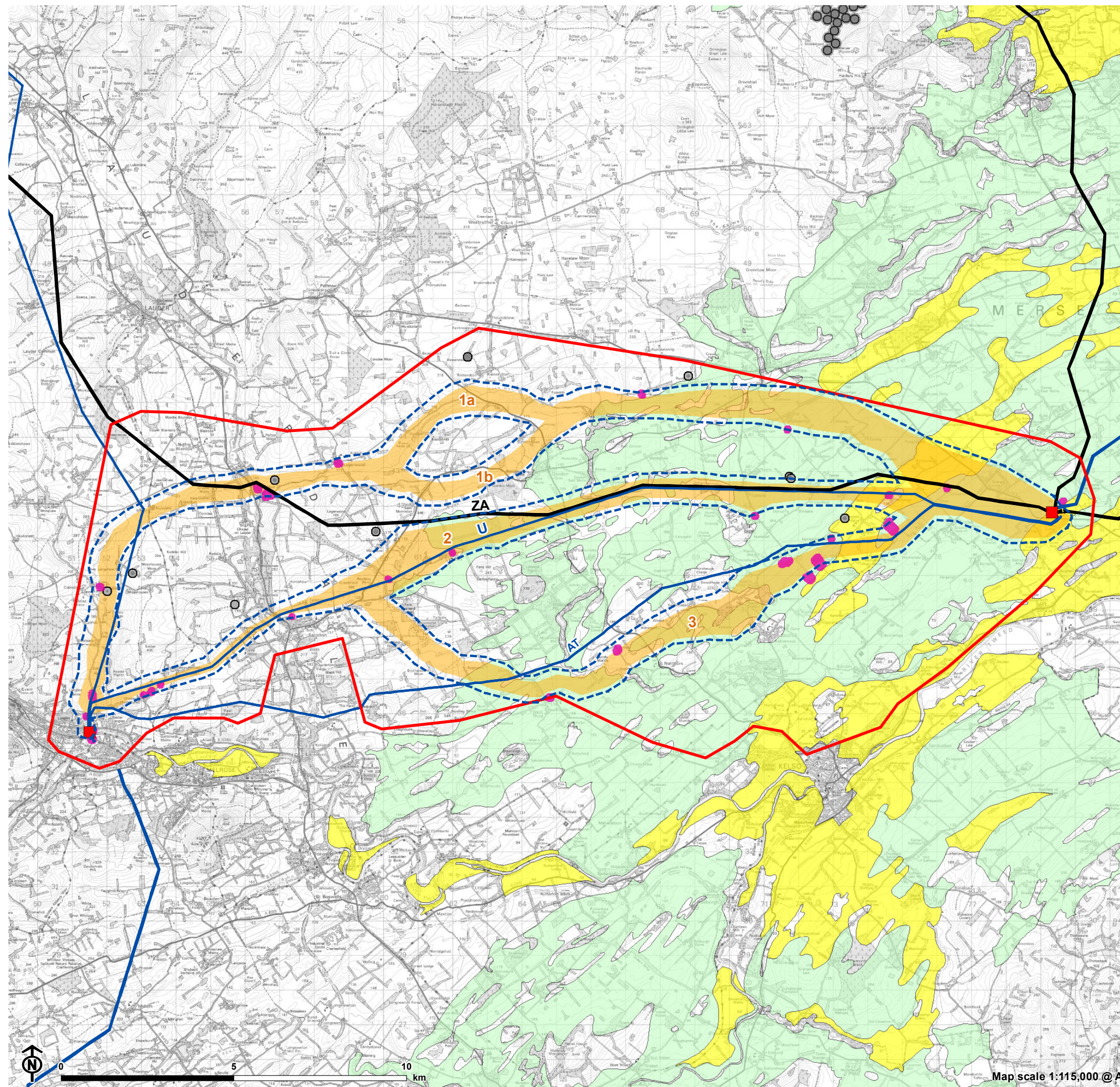
Notes:
For data licencing reasons, the SEPA 1:200 year flood risk zones are not shown on Figure 5.5, however these can be viewed at the following link:
www.sepa.org.uk/environment/water/flooding/flood-maps/

Figure 5.6: Cultural Heritage Assets



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- All routes
- Historic Environment Record
- Garden and Designed Landscape
- Conservation Area
- Scheduled Monument
- Locally recognised designed landscapes
- Battlefield
- ▲ Category A listed building
- ▲ Category B listed building
- ▲ Category C listed building

Figure 5.7: Land Use Features



- Study area
- 132kV Overhead line
- 400kV Overhead line
- Substation
- All routes
- 150m buffer of all routes
- Operational turbine
- 3 x Rotor diameter buffer of operational turbine
- Committed Development
- Land Capability for Agriculture - Class 2
- Land Capability for Agriculture - Class 3.1

Chapter 6

Appraisal Findings

6.1 The emerging preferred route for the Galashiels to Eccles 132kV OHL Replacement Project, i.e. the preference taking account of both environmental and technical considerations, is **Route Option 2**. Route Option 2 is the shortest route and avoids sensitive landscape and visual receptors with the exception of the pinch point at the Leader Water; this pinch point is unavoidable for all three route options considered. Route Option 2 also largely follows the alignment of the existing steel tower 'U' route OHL which the proposed new OHL will replace. Replacement of the existing 'U' route (also comprising steel towers) with a new steel tower OHL following the same route will present less of a change in landscape character and visual amenity compared to the introduction of new infrastructure into a previously unaffected area.

6.2 In relation to biodiversity, as the area is currently supporting existing OHL infrastructure, it is assumed to be already 'disturbed' and local bird populations may be habituated to the presence of the OHL. Route Option 2 also does not cross any Local Wildlife Sites by comparison to other route options. Route Option 2 will impact the lowest number of heritage assets, by comparison to Route Options 1a-b and 3, and potentially result in the least change to setting given that it largely follows the existing 'U' route.

6.3 In relation to land use, all approved planning applications located within Route Option 2 can be avoided through detailed design. Furthermore, the majority of Class 2 and Class 3.1 Land Capability for Agriculture (LCA) within Route Option 2 is already accustomed to the presence of existing OHL infrastructure, therefore, disturbance to LCA Class 2 and 3.1 land is considered to comprise a lesser extent than for Route Options 1a-b and 3.

6.4 Route Option 2 crosses the fewest number of watercourses compared to Route Options 1a-b and 3; the proposed OHL infrastructure as part of the Galashiels to Eccles 132kV OHL Replacement Project will be able to span these during route alignment. Route Option 2 is also preferred from in relation to SPEN's technical criteria as it crosses the fewest number of public roads (presenting an engineering and safety constraint) and has the potential to avoid crossing the existing 'ZA' route and 'U' route during construction through careful routing design (refer to SPEN's technical criteria outlined within **Chapter 5**).

6.5 Whilst Route Option 2 performs the most favourably on balance against the environmental and technical criteria, the potential felling of NWSS woodland and NFI forestry will be required to be taken into consideration where possible during the detailed design and appraisal stages. For example, there are three expanses of NWSS which cannot be avoided during the design stage as they span the width of Route Option 2 near Earlston and Galashiels substation. There is also an expanse of NFI which spans the majority of the Route Option 2 near the centre of the study area. The remaining small area of non-woodland already contains the existing 'U' route (which will remain in the landscape during the construction of the new OHL). To maintain safety clearance from the 'U' route, the proposed new OHL will therefore, require routeing through the woodland.

6.6 The detailed appraisal findings are included in **Appendix D**.

Consideration of Cumulative Effects of Emerging Route Option Preference

6.7 As set out in **Chapter 3**, the routeing process takes cognisance of other OHLs which share the project study area. When considering more than one project, combined or cumulative effects can arise from the concentration of effects in one area or the distribution of effects across a wider area. It is therefore necessary to find an appropriate balance using professional judgement and experience.

6.8 The other existing OHL connections considered in the cumulative appraisal comprise the 400kV OHL between Cockenzie substation and Eccles substation ('ZA' route), the 'U' route and 'AT' route (which will be present in the landscape during the construction of the new Galashiels to Eccles 132kV Replacement OHL and decommissioned following construction), and other 33kV and 11kV OHLs in the landscape. These were also considered in the review of technical constraints as part of the appraisal of route options (see **Chapter 5 and Appendix D**). No other OHLs are currently planned within the project study area.

6.9 There are 14 OHL crossings within Route Option 2, including a potential crossing of the 132kV 'U' route OHL. Route Option 2 runs in parallel to the 400kV 'ZA' route for approximately half of the length of the route in the eastern extent of the study area, however, clearances can be maintained through detailed design. Route Option 2 also runs in parallel to the 'U' route for the entirety of the route which will be decommissioned following the construction of the new OHL. Two 33kV OHLs also run in parallel to Route Option 2, however, clearances are attainable through detailed design.

6.10 Where OHLs run in parallel or close proximity there is potential for cumulative effects. Where Route Option 2 runs

alongside the 'U' route these effects will be short-lived, ceasing on removal of the 'U' route. Where Route Option 2 runs alongside the 'ZA' route the longer term effects will be similar in nature to the effects of the existing OHLs in this area, therefore no additional cumulative effects are anticipated.

6.11 The technical review found that Route Option 2 has the potential to avoid crossing the 'ZA' route, 'U' route and the two 33kV OHLs during construction through careful routeing design. The proximity to the 'U' route will also provide the opportunity to share construction/ decommissioning infrastructure.

6.12 Overall, there are no likely cumulative effects which will prevent Route Option 2 from being progressed further. Cumulative effects will, however, continue to be considered, and assessed where appropriate, throughout the alignment and Environmental Impact Assessment (EIA) or Environmental Appraisal stages.

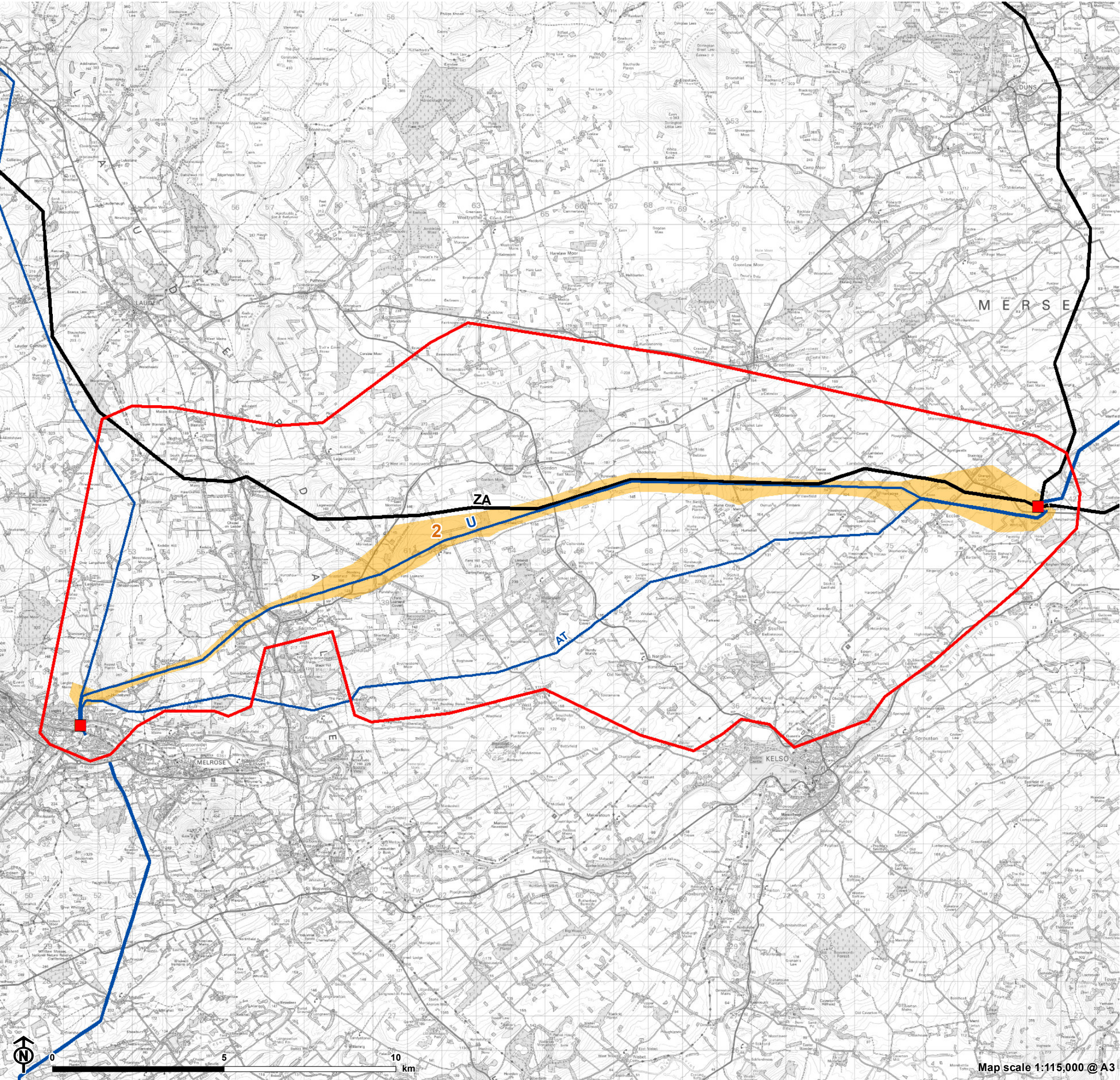
Conclusion

6.13 In accordance with the overarching project routeing strategy, the selection of the preferred route has primarily reflected the findings of the landscape and visual appraisal, including residential amenity, subject to avoiding areas of highest amenity value. This is on the basis that the routeing stage comprises the most effective way of avoiding and/or minimising potential landscape and visual effects, whereas effects on other environmental characteristics such as forestry can be more readily minimised during the route alignment stage (and potentially through adoption of mitigation measures).

6.14 On this basis, the environmental and technical appraisal undertaken as part of the routeing process has identified a continuous 132kV OHL route which meets the project routeing objective. The preferred route is confirmed as **Route Option 2** and is shown in **Figure 6.1**. The preferred route, along with the alternative route options considered, form the basis of this round of consultation with stakeholders and the public. Further details in relation to the consultation process are provided in **Chapter 7**.



Figure 6.1: Preferred Route Option



- Study area
- Substation
- 132kV Overhead line
- 400kV Overhead line
- Preferred route option 2

Chapter 7

Consultation Process and Next Steps

The Consultation Process

7.1 As set out in **Chapter 1**, SPEN will apply to the Scottish Ministers for consent to install and keep installed the new replacement 132kV overhead electricity line, supported on steel towers, from Galashiels substation to Eccles substation under Section 37 of the Electricity Act 1989. SPEN will also apply for deemed planning permission for the line and associated works under Section 57(2) of the Town and Country Planning (Scotland) Act 1997. While there are no formal pre-application requirements for consultation in seeking section 37 consent/deemed planning permission, SPEN is embracing best practice as outlined in the *Scottish Government Energy Consents Unit's Best Practice Guidance (January 2013)*. This guidance encourages applicants to engage with stakeholders and the public in order to develop their proposals in advance of such applications being made.

7.2 Therefore, prior to the submission, SPEN is carrying out consultation with stakeholders and the public.

7.3 Following the submission of application for Section 37 consent and deemed planning permission, the Scottish Government Energy Consents Unit will, on behalf of Scottish Ministers, carry out further consultation with the public and stakeholders, including Scottish Borders Council.

Consultation Strategy

7.4 SPEN attaches great importance to the effect that its works may have on the environment and local communities and is very keen to hear the views of local people to help it develop the Galashiels to Eccles 132kV OHL Replacement Project in the best way.

7.5 The overall objective of the consultation process is to ensure that all parties with an interest in the Galashiels to Eccles 132kV OHL Replacement Project continue to have access to up to date information and are given clear and easy ways in which to shape and inform SPEN's proposals at the pre-application stage.

7.6 In addition, it is envisaged that the key issues identified through this process can be recorded and presented to decision makers to assist the consents process.

7.7 As part of the consultation strategy, SPEN will be holding virtual exhibitions for the public, stakeholders and

consultees. Details of the consultation process are set out below.

Consultation Launch and Duration

7.8 The consultation will run for four weeks from **27th September 2021 to 24th October 2021**.

7.9 Prior to the consultation, an advert will appear in the Southern Reporter and Berwickshire News and Berwick Advertiser (two local weekly newspapers) for two weeks on **Thursday 16th September and Thursday 23rd September 2021**. The advert will provide information on the project, where and when the consultation will take place and confirm that comments received at this stage are informal comments to SP Energy Networks, with the opportunity to comment formally to the Energy Consents Unit (ECU) available once an application has been submitted to them. A copy of the advertisement text to be publicised in the local newspaper is provided in **Appendix E**.

7.10 Leaflets have also been distributed to local properties which are located within 500m of the Route Options. The leaflet distributed is contained in **Appendix F**.

7.11 The closing date for sending responses to SPEN will be midnight on **Sunday 31st October 2021**. Following this date, the information will remain accessible online (on the project website) and available to download (from the project website and the online virtual exhibition).

Consultees

7.12 SPEN wishes to consult with relevant stakeholders and gain their views on the proposed route of the Galashiels to Eccles 132kV OHL Replacement Project. The consultation will seek to gain views from the following broad groups:

- statutory and non-statutory consultees, including community councils;
- known local interest and community groups operating in Scottish Borders Council area;
- elected members of Scottish Borders area, the Member of Parliament (MP) and Members of the Scottish Parliament (MSPs) whose constituencies are within in the Scottish Borders Council area; and
- local residents, businesses and the public in general.

7.13 As noted above, leaflets have been distributed to local residents. Email correspondence has been sent to relevant stakeholders advising them of the consultation and seeking

their views on the proposals. The list of stakeholders consulted can be found in **Appendix G**.

The Focus of the Consultation

7.14 This report presents the findings of Phase One of the Galashiels to Eccles 132kV OHL Replacement Project, the routing process, resulting in the identification of a preferred route.

7.15 The focus of the consultation will be to ask for people's views on:

- the preferred route;
- the alternative route options considered during the routing process;
- any other issues, suggestions or feedback; particularly views on the local area, for example areas used for recreation, local environmental features, and any plans to build along the preferred route.

Sources of Information about the Consultation

7.16 The principal sources of information regarding the consultation will comprise the Galashiels to Eccles 132kV Replacement Project website and the online virtual exhibition.

Project Website

7.17 The website www.spenergynetworks.co.uk/galashiels-eccles will contain publicly available consultation documents for viewing or download.

Online Virtual Exhibition

7.18 Given the current social distancing restrictions due to the Covid-19 pandemic, it has not been possible to hold in-person public exhibitions and this position is endorsed by the Scottish Government under emergency legislation. Therefore, as a form of good practice, SPEN will hold a virtual public exhibition from **27th September 2021 to 24th October 2021** as an alternative to face-to-face consultation. Although this is not a statutory consultation requirement, it remains in line with recent Scottish Government Guidance¹⁴.

7.19 The online exhibition (accessed through the project website) will include a series of information boards outlining details of the Galashiels to Eccles 132kV OHL Replacement Project. The information on the Galashiels to Eccles 132kV Connection Project will also be available to download as a pdf.

¹⁴ Scottish Government, 2020, 'Covid 19 Emergency and Pre-Application Consultation and Requirements for a Public Event', Available [online] at:

<https://www.gov.scot/publications/coronavirus-covid-19-planning-guidance-on-pre-application-consultations-for-public-events/>

Chapter 7

Consultation Process and Next Steps

Galashiels to Eccles 132kV OHL Replacement
SeptemberSeptember 2021

How to Make Comments or Discuss the Project

7.20 People will be able to submit comments or ask questions:

- at the virtual exhibition via the online questionnaire and live messenger chat;
- by email;
- in writing; or
- by phone.

At the Virtual Exhibition

7.21 Visitors to the online exhibition will have the opportunity to provide feedback by completing an online questionnaire. The closing date for sending responses will be midnight on **Sunday 31st October 2021**. Following this date, the information will remain accessible online and available to download.

7.22 We will also be on hand to answer any questions you may have via the live chat service on the virtual exhibition room on the following dates:

Monday 27th September from 2pm-4pm

Tuesday 28th September from 10am-12pm

Wednesday 29th September from 5pm-7pm.

Email

7.23 SPEN will also accept comments relating to the specific focus of this round of consultation by e-mail to GalaEcclesOHL@spenergynetworks.co.uk no later than midnight on **Sunday 31st October 2021**.

In Writing

7.24 SPEN will also accept comments relating to the specific focus of this round of consultation in writing. Letters are to be posted to the following address no later than midnight on **Sunday 31st October 2021**:

Galashiels to Eccles 132kv Replacement Project
Land and Planning Team
SP Energy Networks
55 Fullarton Drive
Glasgow
G32 8FA

If contacting SPEN by post, people are advised to allow up to 7 days for these to be received. It may not be possible to consider comments received after this date.

By Phone

You can call the Community Liaison Team during the consultation period on 07516461129.

Next Steps: Route Alignment and Environmental Impact Assessment

7.25 The responses received from the consultation process will be considered in combination with the findings of this report to enable SPEN to decide on the 'proposed' route to be progressed to the next stage.

7.26 The proposed route will then progress to identify an OHL alignment, including individual tower positioning which will be informed by the emerging findings of the surveys and assessment undertaken as part of the Environmental Impact Assessment (EIA), detailed engineering ground surveys and discussions with landowners. This alignment, including all ancillary development will be included in the application for Section 37 Consent and deemed planning permission.

7.27 SPEN will consult fully with affected landowners and occupiers on all aspects of the Galashiels to Eccles 132kV OHL Replacement Project and will give them an opportunity to comment on proposals as they progress.

Appendix A

The Holford Rules and SHETL Clarification Notes

The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (with NGC 1992 and SHETL 2003 Notes)

Rule 1

Avoid altogether, if possible, the major areas of highest amenity, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note on Rule 1

- a. Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.
- b. Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines¹⁵, Circulars and Planning Advice Notes and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:

Special Area of Conservation (NPPG 14)¹⁶

Special Protection Area (NPPG 14)¹⁷

Ramsar Site (NPPG 14)¹⁸

National Scenic Areas (NPPG 14)¹⁹

National Parks (NPPG 14)²⁰

National Nature Reserves (NPPG 14)²¹

Protected Coastal Zone Designations (NPPG 13)²²

Sites of Special Scientific Interest (SSSI) (NPPG 14)²³

Schedule of Ancient Monuments (NPPG 5)²⁴

Listed Buildings (NPPG 18)²⁵

Conservation Areas (NPPG 18)²⁶

World Heritage Sites (a non-statutory designation) (NPPG 18)²⁷

Historic Gardens and Designed Landscapes (a non-statutory designation) (NPPG 18)²⁸

¹⁵ The National Planning Policy Guidelines ("NPPG") have been superseded by the Scottish Planning Policy ("SPP") published on 23 June 2014. The references to the relevant equivalent paragraphs of the SPP are noted.

¹⁶ Now noted in SPP paragraph 207.

¹⁷ Now noted in SPP paragraph 207.

¹⁸ Now noted in SPP paragraph 211.

¹⁹ Now noted in SPP paragraph 212.

²⁰ Now noted in SPP paragraph 212.

²¹ Now noted in SPP paragraph 212.

²² Now noted in SPP paragraph 87.

²³ Now noted in SPP paragraphs 211-212.

²⁴ Now noted in SPP paragraph 145.

²⁵ Now noted in SPP paragraph 141.

²⁶ Now noted in SPP paragraph 143.

²⁷ Now noted in SPP paragraph 147.

²⁸ Now noted in SPP paragraph 148.

Rule 2

Avoid smaller areas of high amenity value, or scientific interest by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction.

Note on Rule 2

- a. *Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.*
- b. *Impacts on the setting of historic buildings and other cultural heritage features should be minimised.*
- c. *If there is an existing transmission line through an area of high amenity value and the surrounding landuses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.*

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers.

Note on Rule 3

- a. Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- b. Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

Choose tree and hill backgrounds in preference to sky backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees.

Notes on Rules 4 and 5

- a. Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.
- b. Minimise the exposure of numbers of towers on prominent ridges and skylines.
- c. *Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).*

- d. Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6

In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

- a. In all locations minimise confusing appearance.
- b. Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the impacts on properties and features between lines.

Rule 7

Approach urban areas through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

- a. When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- b. Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.
- c. When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

The assumption made in Rule 7 is that the highest voltage line is overhead.

Supplementary Notes

a. Residential Areas

Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b. Designations of Regional and Local Importance

Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.

c. Alternative Lattice Steel Tower Designs

In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified. [Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled *Overhead Transmission Line Tower Study 2004*].

FURTHER NOTES ON CLARIFICATION TO THE HOLFORD RULES

Line Routeing and People

The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc.

The following notes are intended to reflect this.

- a.** Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- b.** In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.
- c.** Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Supplementary Notes on the Siting of Substations

- a.** Respect areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.
- b.** Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.
- c.** Use space effectively to limit the area required for development, minimizing the impacts on existing land use and rights of way.
- d.** Alternative designs of substation may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified.
- e.** Consider the relationship of tower and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.
- f.** When siting substations take account of the impacts of line connections that will need to be made.

INTERPRETATION OF THE HOLFORD RULES 1 AND 2 AND THE NOTES TO RULE 2 REGARDING THE SETTING OF A SCHEDULED ANCIENT MONUMENT OR A LISTED BUILDING

1. Interpretation of The Holford Rules 1 and 2

1.1. Introduction

Rules 1 refers to avoiding major areas of highest amenity value, Rule 2 refers to avoiding smaller areas of high amenity value. These rules therefore require identification of areas of amenity value in terms of highest and high, implying a hierarchy, and the extent of their size(s) or area(s) in terms of major and smaller areas.

The NGC Notes to these Rules identify at Rule 1(b) areas of highest amenity value and at Rule 2(a) and (b) of high amenity value that existed in England circa 1992.

1.2. Designations

Since 1949 a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation interest. In addition to national designations, European Community Directives on nature conservation, most notably through Special Areas of Conservation under the Habitats and Species Directive (92/43/EC) and Special Protection Areas under the Conservation of Wild Birds Directive (79/409/EEC) have been implemented. Governments have also designated a number of Ramsar sites under the Ramsar Convention on wetlands of International Importance (CM6464). Scottish Office circulars 13/1991 and 6/1995 are relevant sources of information and guidance. In addition, a wide range of non-statutory landscape and nature conservation designations affect Scotland.

1.3. Amenity

The term 'Amenity' is not defined in The Holford Rules but has generally been interpreted as designated areas of scenic, landscape, nature conservation, scientific, architectural or historical interest.

This interpretation is supported by paragraph 3 of Schedule 9 to the electricity Act 1989 (The Act). Paragraph 3 (1)(a) requires that in formulating any relevant proposals the licence holder must have regard to the desirability of preserving natural beauty, or conserving flora, fauna and geological or physiological features of special interest and of protecting sites, buildings, including structures and objects of architectural, historic or archaeological interest. Paragraph 3 (1)(b) requires the license holder to do what he reasonably can do to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any flora, fauna, features, sites, buildings or objects.

1.4. Hierarchy of Amenity Value

Rules 1 and 2 imply a hierarchy of amenity value from highest to high.

Schedule 9 to the Act gives no indication of hierarchy of value and there is no suggestion of a hierarchy of value in either NPPG5: Archaeology and Planning, NPPG 13: Coastal Planning, NPPG 14: Natural Heritage or NPPG 18: Planning and the Historic Environment. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

1.5. Major and Smaller Areas

Rules 1 and 2 imply consideration of the spatial extent of the area of amenity in the application of Rules 1 and 2.

1.6. Conclusion

Given that both the spatial extent in terms of major and smaller and the amenity value in terms of highest and high that must be considered in applying Rules 1 and 2, that no value in these terms is provided by either Schedule 9 to the Act, relevant Scottish Planning Policies or National Planning policy Guidelines, then these must be established on a project-by-project basis. Designations can be useful in giving an indication of the level of importance and thus value of the interest safeguarded. The note to The Holford Rules can thus only give examples of the designations which may be considered to be of the highest amenity value.

2. The setting a Scheduled Ancient Monument or a Listed Building

The NGC note to Rule 2 refers to the setting of historic buildings and other cultural heritage features. NPPG 5: Archaeology and Planning refers to the setting of scheduled ancient monuments and NPPG 18: Planning and the Historic Environment refers to the setting Listed Buildings. None of these documents define setting.

ENVIRONMENTAL AND PLANNING DESIGNATIONS – EXAMPLES OF DESIGNATIONS TO BE TAKEN INTO ACCOUNT IN THE ROUTING OF NEW HIGH VOLTAGE TRANSMISSION LINES

Major Areas of Highest Amenity Value

1. In Scotland relevant national or international designations for major areas of highest amenity value include the following identified from Scottish Planning Policies and National Policy Guidelines²⁹:

Special Areas of Conservation	(NPPG 14)
Special Protection Areas	(NPPG 14)
Ramsar Sites	(NPPG 14)

²⁹ See footnotes under Holford Rule 1 (note on Rule 1) for references update.

National Scenic Areas	(NPPG 14)
National Parks	(NPPG 14)
National Nature Reserves	(NPPG 14)
Protected Coastal Zone Designations	(NPPG 13)
Sites of Special Scientific Interest	(NPPG 14)
Scheduled Ancient Monuments	(NPPG 5)
Listed Buildings	(NPPG 18)
Conservation Areas	(NPPG 18)
World Heritage Sites	(NPPG 18)
Historic Gardens and Designated Landscapes	(NPPG 18)

Other Smaller Areas of High Amenity Value

2. There are other designations identified in development plans of local planning authorities which include areas of high amenity value:

Areas of Great Landscape Value

Regional Scenic Areas

Regional Parks

Country Parks

The nature of the landscape in these areas is such that some parts may also be sensitive to intrusion by high voltage overhead transmission lines but it is likely that less weight would be given to these areas than to National Scenic Areas and National Parks.

Flora and Fauna

3. Legislation sets out the procedure for designation of areas relating to flora, fauna and to geographical and physiogeographical features. Designations relevant to the routing of transmission lines will include Special Area of Conservation, Special Protection Area, Sites of Special Scientific Interest, National Nature Reserves, Ramsar Sites and may also include local designations such as Local Nature Reserve.

Area of Historic, Archaeological or Architectural Value

4. Certain designations covering more limited areas are of relevance to the protection of views and the settings of towns, villages, buildings or historic, archaeological or architectural value. These designations include features which may be of exceptional interest. Of particular importance in this connection are:

Schedule of Ancient Monuments

Listed Buildings, especially Grade A and Grade B Conservation Areas

Gardens and Designated Landscapes included in the Inventory of Gardens and Designated Landscapes of Scotland

Green Belts

5. Generally the purposes of Green Belts are not directly concerned with the quality of the landscape.

Appendix B

Environmental Considerations

Appendix B
Environmental Considerations

Galashiels to Eccles 132kV OHL Replacement
SeptemberSeptember 2021

Table B.1: Environmental Considerations

Topic	Consideration	Objectives
Length of Route	Length of Route Option (Holford Rule 3)	To seek to adopt the shortest route option.
Landscape and Visual Amenity	National Scenic Area (Holford Rule 1)	To seek to avoid/reduce, as far as practical, effects on designated landscapes. (Holford Rule 1 and 2). To contribute to the understanding of likely landscape and visual sensitivities within different areas for routeing. (Holford Rules 4, 5, 6 and 7). To seek to avoid/reduce, as far as practicable, potential effects on views from residential receptors. To seek to avoid/reduce, as far as practicable, potential effects on formal/informal recreational areas and tourism features. (Further Notes on Clarification to the Holford Rules).
	Special Landscape Areas (Holford Rule 2)	
	Landscape Character Area (Holford Rule 4,5,6 and 7)	
	Residential Visual Amenity with '150m trigger for consideration zone'	
	Visual Amenity – potential for views from settlements and routes (similar to Holford Rule 4)	
	Tourism and Recreation: potential for views from OS promoted viewpoints, Sustrans routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses (Notes on Clarification to the Holford Rules)	
Hydrology	Flood Zones and Waterbodies	To cross flood zones at their narrowest point with overhead lines to minimise locating infrastructure within flood zones.
Forestry and Woodland	Ancient Woodland (AWI) (Holford Rule 2)	To seek to avoid/reduce, as far as practical, effects on forestry, particularly areas of ancient woodland and native woodland, and on future forestry operations. (Holford Rule 5).
	Native Woodland (NWSS) (Holford Rule 2)	
	Forestry (NFI) (Holford Rule 5)	
Biodiversity	Sites of Special Scientific Interest (SSSI) (Holford Rule 1)	To seek to avoid/reduce, as far as practical, effects on designated sites of ecological importance. (Holford Rule 1 and 2). To seek to avoid/reduce, as far as practical, effects on ornithological species of high conservation value. (Holford Rule 1)
	Special Areas of Conservation (SAC) (Holford Rule 1)	
	Local Wildlife Sites (LWS) (Holford Rule 2)	
	Scottish Wildlife Trust Reserves (Holford Rule 2)	

Appendix B
Environmental Considerations

Galashiels to Eccles 132kV OHL Replacement
SeptemberSeptember 2021

Topic	Consideration	Objectives
Cultural Heritage	Scheduled Monuments (Holford Rule 1)	To seek to avoid/reduce, as far as practical, direct effects and indirect effects on the setting of designated features of cultural heritage interest. (Holford Rule 1 and 2).
	Listed Buildings, Category A, B and C (Holford Rule 1)	
	Conservation Areas (Holford Rule 1)	
	Inventory Gardens and Designed Landscapes (Holford Rule 1)	
	Inventory Historic Battlefields (Holford Rule 1)	
	Non-designated records identified by the Scottish Borders Council (SBC) Historic Environment Record/ Canmore and SBC locally recognised designed landscapes (Holford Rule 2)	
Land Use	Existing and Committed Development (including approved residential-use planning applications, approved non-residential planning applications of a size and geographic location to be considered 'major areas', existing and approved wind turbines, and development areas identified within the SBC Local Development Plan).	To seek to avoid/reduce, as far as practical in the circumstances, effects on existing and committed development. (Holford Rule 7). To seek to avoid/reduce, as far as practical, effects on best and most versatile agricultural land. (Holford Rule 7).
	Scotland Land Capability for Agriculture Classes 2 and 3.1	
Technical	Altitude and Topography	Minimise the exposure of numbers of towers and their height on prominent ridges and skylines to reduce visual effects(Holford Rule 5). To seek to avoid converging routes as far as possible by keeping lines independent of one another (Holford Rule 6).
	Crossing of / proximity to existing overhead lines in the landscape	
	Crossing of / proximity to other existing infrastructure, i.e. public service utilities, roads and railways and residential/industrial areas	

Appendix C

Landscape Susceptibility Appraisal

Appraisal of Landscape Susceptibility to OHL Development

C.1 Landscape susceptibility is defined as "the ability of a defined landscape to accommodate the specific proposed development without undue negative consequences" (GLVIA3, p.158).

C.2 Landscape susceptibility is assessed with reference to the existing characteristics and attributes of the landscape. Accordingly, the NatureScot National Landscape Character Assessment (2019) has been used as the basis for determining landscape susceptibility across the study area. The following regional Landscape Character Types (LCT) fall within the study area and are mapped on **Figure 5.1**.

- Undulating Upland Fringe (103);
- Settled Upland Fringe Valley (118);

- Pastoral Upland Fringe Valley (117);
- Rolling Farmland – Borders (99);
- Lowland Margin with Hills (109);
- Lowland Margin (108);
- Lowland Valley with Farmland (12); and
- Lowland with Drumlins (106).

C.3 Each LCT which is potentially affected by a route option has been evaluated on its susceptibility to being changed by OHL development of the type proposed, and categorised as having **higher to lower** susceptibility. The application of professional judgement also draws on the principles set out in the Holford Rules. Indicators of the relative levels of landscape susceptibility to accommodate OHL development are shown in the Table A.1.

Table C.1: Indicators of Landscape Susceptibility

Susceptibility	Definition
Higher	Landscape character, existing land use, pattern, scale and attributes are vulnerable to being changed or lost resulting from the introduction of OHL development. Key perceptual and aesthetic characteristics are vulnerable to change or loss.
Medium	
Lower	Landscape character, existing land use, pattern, scale and attributes are robust and tolerant of the change resulting from OHL development. The change could be accommodated without geographically extensive and/ or significant adverse effects on (or loss of) key perceptual, physical or aesthetic characteristics.

C.4 For each LCT, the key characteristics are analysed to inform an overall judgement on the LCT's susceptibility to OHL development (refer to **Figure 5.1**). **Table A.2** outlines the rationale for determining landscape susceptibility in relation to key landscape characteristics. **Table A.3** presents LUC's

appraisal of landscape susceptibility to OHL development with reference to the Local LCT through which the route options pass.

Table C.2: Indicators of Landscape Susceptibility

Criteria	Characteristics indicating a lower susceptibility to OHL development	Characteristics indicating a higher susceptibility to OHL development
Landform and Scale	Flatter or gently undulating landscapes Broad valley landscapes Larger scale landscapes	Steep, complex landscapes Complex topography Intimate scale landscapes

Appendix C
Landscape Susceptibility Appraisal

Galashiels to Eccles 132kV OHL Replacement
September 2021

Landcover and pattern	Arable, pasture, rough grassland Moorland Simple patterns Landcover which can recover quickly/ does not require complex engineering solutions	Continuous woodland Bog, peat, wetlands Complex patterns Landcover which recovers slowly/ requires complex engineering solutions
Human influence	Industry, arable farming, presence of large built structures, disturbed areas Landscapes which have experienced a higher level of human influence More developed/ managed landscapes	Remote landscapes Areas with natural characteristics Landscapes with little evidence of human influence
Visual experience	Interrupted horizons Simple skylines	Uninterrupted horizons Distinctive/ complex skylines
Settlements	Industrial Sparsely settled arable	Residential Dense patterns of isolated farmstead/ small scale settlements

Table C.3: Landscape Susceptibility Appraisal

Landscape Character Type	Key landscape characteristics	LUC appraisal: Landscape susceptibility to OHL development of the type proposed
118 Settled Upland Fringe Valley	■ <i>"Medium to large scale flat bottomed valley, enclosed by undulating upland fringe hills.</i> ■ <i>Smooth large scale landform modified in places by undulating moraine deposits, steep bluffs and terraces cut by meandering river.</i> ■ <i>Neat pattern of medium sized arable and pasture fields, divided by hedgerows, often with mature trees.</i> ■ <i>Mature broadleaf woodlands and shelterbelts prominent along valley floor and lower slopes.</i> ■ <i>Coniferous woodlands on valley sides contrasting with pastures, often well integrated into landscape."</i>	The key characteristics including the larger scale, simple landscape pattern and landcover, relatively dense settlement and interrupted horizons indicate a medium-low susceptibility to OHL development.
103 Undulating Upland Fringe	■ <i>Large scale, moderately to steeply sloping and undulating landform incised in places by steep gullies and narrow valleys.</i> ■ <i>Unity of land cover characterised by improved pastures, with prominent field pattern delineated by a well maintained network of drystone dykes, and scattered small to medium sized coniferous plantations.</i> ■ <i>Medium density settlement with small villages and farmsteads sited typically in sheltered valleys and on lower slopes.</i> ■ <i>A simple, uniform landscape of smooth flowing curves, open in character with distant views over adjoining valley types and the Lammermuir and Moorfoot hills.</i> ■ <i>Boundaries clearly defined by major river valleys</i>	The key characteristics including the large scale, complex landform, simple land cover, uninterrupted skylines and presence of settlement indicate a medium-high susceptibility to OHL development.
117 Pastoral Upland Fringe Valley	■ <i>"Medium scale pastoral valley with flat floor enclosed by upland fringe pastures, often with rough grassland and moorland covered hills above.</i> ■ <i>Smooth large scale landform modified in places by bluffs and moraine on valley floor, scree slopes or rock outcrops on valley sides.</i> ■ <i>Narrow, often wooded tributary side valleys.</i> ■ <i>Broadleaf woodlands and scrub on bluff slopes and scattered trees along river banks, occasional coniferous plantations and shelterbelts on valley sides.</i> ■ <i>Valley floor pastures enclosed by drystone dykes with occasional hedgerows, interspersed with occasional patches of scrub, coarse grass and rushes.</i> ■ <i>Scattered villages, farmsteads and mansion houses with policy woodlands."</i>	The key characteristics including the medium scale, locally complex landform, complex landscape pattern and pattern of settlement indicate a medium-high susceptibility to OHL development.

Landscape Character Type	Key landscape characteristics	LUC appraisal: Landscape susceptibility to OHL development of the type proposed
99 Rolling Farmland – Borders	■ <i>“Undulating relief, becoming more pronounced at higher elevations.</i> ■ <i>Distinctive areas of flat or constant gentle gradients, giving wide horizons and skylscapes.</i> ■ <i>Large-scale strong geometric field pattern, enclosed by hedgerows, with scattered coniferous woods.</i> ■ <i>Mix of arable, ley pasture and permanent grazing land.</i> ■ <i>Moderately densely settled, with frequent farmsteads and small villages.</i> ■ <i>Well kempt, prosperous appearance.”</i>	The key characteristics including the large scale, simple landscape pattern, relatively dense settlement and wide horizons indicate a medium-high susceptibility to OHL development.
109 Lowland Margin with Hills	■ <i>“Distinctive topography consisting of conical and dome shaped hill groups and crags rising prominently above more gently rolling landform.</i> ■ <i>Land cover of pasture and arable fields divided by hedgerows or drystone dykes, with scattered mature broadleaf, coniferous and mixed woodlands.</i> ■ <i>Well-maintained beech and thorn hedgerows with mature hedgerow trees in lower areas.</i> ■ <i>Moderately dense settlement of frequent, evenly scattered small villages and farmsteads along minor roads and tracks.</i> ■ <i>A predominantly large scale open landscape of strong curves, and intermittent distant views over the Tweed lowlands.”</i>	The key characteristics including large scale, locally complex landform, simple landscape pattern, dense settlement and wide, interrupted horizons indicate a medium susceptibility to OHL development.
108 Lowland Margin	■ <i>“Even, very gently sloping landform with extensive flat low-lying areas.</i> ■ <i>Large arable and pasture fields divided by drystone dykes.</i> ■ <i>Widely dispersed woodlands.</i> ■ <i>Medium density settlement of scattered stone built farmsteads and villages.</i> ■ <i>A large scale, regular, uniform landscape with distant and panoramic views to uplands, punctuated by volcanic hills in the middle distance outwith the unit.”</i>	The key characteristics including the large scale, simple landform, simple landscape pattern, wide views and relatively dense pattern of settlement indicate a medium susceptibility to OHL development.
120 Lowland Valley with Farmland	■ <i>“Broad, shallow, flat bottomed valleys with gently sloping/undulating sides.</i> ■ <i>Neat pattern of medium to large sized arable and pasture fields divided by prominent hedgerows with some mature broadleaf tree lines.</i>	The key characteristics including the large scale, simple landscape pattern, occasionally complex landform, and well developed road network indicate

Landscape Character Type	Key landscape characteristics	LUC appraisal: Landscape susceptibility to OHL development of the type proposed
	■ <i>Bluffs and terraces cut by rivers.</i> ■ <i>Occasional prominent volcanic hills, knolls and rock outcrops.</i> ■ <i>Broadleaf woodland common on strips on river bluffs and in side valleys, small blocks, shelterbelts and policy woodlands on lower slopes and valley floor.</i> ■ <i>Scattered small towns, stone built farmsteads, villages, and mansion houses along well developed road network.</i> ■ <i>Fertile, neat, prosperous appearance."</i>	a medium-low susceptibility to OHL development.
106 Lowland with Drumlins	■ <i>"Parallel elongated, gently undulating ridges and hollows.</i> ■ <i>Land cover dominated by a regular grid pattern of large arable fields divided by hedgerows, and scattered mainly broadleaf woodlands.</i> ■ <i>Densely settled, with scattered towns, villages and farmsteads served by an extensive grid like road network.</i> ■ <i>Collection of country estates defined strongly in the landscape by the planted shelterbelts of their outer policies.</i> ■ <i>A productive, organised landscape of smooth gentle curves and a colourful, regular patchwork appearance, generally open in character but with locally intimate river corridors.</i> ■ <i>Sense of place historically well established, reinforced by the continued usage of the place name "Merse"."</i>	The key characteristics including the dense pattern of settlement, simple landscape pattern and occasionally undulating landform indicate a medium-low susceptibility to OHL development.

Appendix D

Route Options Appraisal Table

Table D.1: Routeing Appraisal Table

Criterion	Sub-Criteria	Route Option 1a	Route Option 1b	Route Option 2	Route Option 3	Preference	
Approximate Length of Line Route (km)	N/A	Approximately 35.16km	Approximately 35.04km	Approximately 30.51km	Approximately 32.5km	Route Option 2 is preferred as it is the shortest route.	
Biodiversity	Special Area of Conservation (SAC)	Route Options 1a and 1b cross the River Tweed SAC at the same two points (both within the western extent of the study area). The river will be spanned at both crossing points during route alignment with no infrastructure installed in the SAC.		Route Options 2 and 3 cross the River Tweed SAC at the same two points (both within the western extent of the study area). The river will be spanned at both crossing points during route alignment with no infrastructure installed in the SAC.		On balance, Route Option 2 is preferred.	
	Sites of Special Scientific Interest (SSSI)	In the far eastern extent of the study area, all route options (approximately 350m of route) lie within the 2km ornithological ‘trigger for consideration zone’ for The Hirsell SSSI, designated for breeding bird assemblage and non-breeding Goosander and Whooper swan. This cannot be avoided due to location of the existing Eccles substation.					Unlike the other Route Options, Route Option 2 does not cross any LWS. Route Option 2 also follows the alignment of the existing steel tower ‘U’ route from Galashiels substation to Eccles substation. As this area is currently supporting existing OHL infrastructure it is therefore assumed to be already ‘disturbed’ and local bird populations may be habituated to the presence of this infrastructure (following NatureScot guidance).
		There are no SSSI located within Route Option 1a. Note: Non-avian SSSI sites located within 100m of the route are: ■ River Tweed. Approximately 35m from route, designated for fish, otter and floating vegetation. ■ Avenel Hill and Gorge. Approximately 100m from route, designated for butterfly and woodland.	There are no SSSI located within Route Option 1b. Note: Non-avian SSSI sites located within 100m of the route are: ■ River Tweed. Approximately 35m from route, designated for fish, otter and floating vegetation. ■ Avenel Hill and Gorge. Approximately 100m from route, designated for butterfly and woodland. ■ Gordon Moss. Approximately 30m	There are no SSSI located within Route Option 2. Note: Non-avian SSSI sites located within 100m of the route are: ■ River Tweed. Approximately 35m from route, designated for fish, otter and floating vegetation. ■ Avenel Hill and Gorge. Approximately 100m from route, designated for butterfly and woodland.	There are no SSSI located within Route Option 3. Note: Non-avian SSSI sites located within 100m of the route are: ■ River Tweed. Approximately 35m from route, designated for fish, otter and floating vegetation. ■ Avenel Hill and Gorge SSSI, is immediately adjacent to route designated for butterfly and woodland.		

			from route, designated for woodland.			There are no other notable differences between Route Option 2 and the other Route Options. All Route Options encroach into the Hirsel SSSI '2km ornithological trigger for consideration zone'. All routes also cross the River Tweed SAC at two points; however, no infrastructure will be installed within the SAC as the river will be spanned during route alignment.
	Local Wildlife Sites (LWS) and Scottish Wildlife Trust Reserves	Route Option 1a crosses two Scottish Borders potential LWS (pLWS): ■ Corsbie Bog (Eden Water) pLWS. 21.6 hectares (ha) of pLWS will be affected by Route option 1a. This can be avoided during the detailed design stage. ■ Everett Moss pLWS. 25.7ha of pLWS will be affected by Route option 1a. This can be avoided during the detailed design stage, but only by routing through a small area north of Everett Moss pLWS.	Route Option 1b crosses one Scottish Borders potential LWS (pLWS): ■ Everett Moss pLWS. 25ha of pLWS will be affected by Route option 1b. This can be avoided during the detailed design stage.	Route Option 2 does not cross any LWS.	Route Option 3 crosses one Scottish Borders potential LWS: ■ Little & Muckle Thairn pLWS. 7.3ha of pLWS will be affected by Route option 4. This can only be avoided during the detailed design stage, but only by routing through a limited area south-east of the pLWS as the pLWS spans the majority of the route option.	
Landscape and Visual Amenity	Residential Visual Amenity with '150m trigger for consideration zone'	All Route Options are within trigger for consideration zones, however, the majority of properties can be avoided during the detailed design stage. Notable "pinch-points" within Route Option 1a include: ■ Just north of the Galashiels substation, a cluster of properties near Glendearg farm span the majority of the width of Route Option 1a, though	All Route Options are within trigger for consideration zones, however, the majority of properties can be avoided during the detailed design stage. Notable "pinch-points" within Route Option 1b include: ■ Just north of the Galashiels substation, a cluster of properties near Glendearg farm span the majority of the	All Route Options are within trigger for consideration zones, however, the majority of properties can be avoided during the detailed design stage. Notable "pinch-points" within Route Option 2 include: ■ A cluster of residential properties near Wester Howlaws creates a narrow pinch point for the proposed OHL to route through in order to avoid the residential trigger for consideration zones.	All Route Options are within trigger for consideration zones, however, the majority of properties can be avoided during the detailed design stage. Notable "pinch-points" within Route Option 3 include: ■ Near Sitchil Stables, there is a cluster of properties creating a pinch-point at this location. ■ Trigger for consideration zones of outlying properties of the town of Earlston	All routes pass through generally similar landscapes with limited difference in identified susceptibility. All routes pass comparable numbers of residential properties and small settlements. Route Options 1a and 1b avoids the potential for

		there is scope to route around the 150m zones. ■ Near the Leader Water, properties near Chapel Mains span the majority of the width of the Route Option, creating a pinch-point in an area which is already dominated by the existing ZA line. ■ Near Legerwood, where Route Options 1a and 1b are split, a pinch point is created by residential properties at Corsbie and nearby native woodland and steeper slopes near Knock Hill.	width of Route Option 1b. ■ Near the Leader Water, properties near Chapel Mains span the majority of the width of the Route Option, creating a pinch-point in an area which is already dominated by the existing ZA line.	■ Trigger for consideration zones of outlying properties of the town of Earlston create a pinch point at the Leader Water.	create a pinch point at the Leader Water.	effects on views at Earlston, although has more potential pinch points. Route Option 3 crosses more recreational routes than others, and also passes closest to designated landscapes. Route Option 2 follows the existing 'U' route, which has been accommodated in the landscape and views over many years.
	Visual Amenity – potential for views from settlements and routes	Route Options 1a and 1b route along higher ground through the west and north of the study area, which increases the potential for wider visibility of an OHL on horizons from lowlands to the south. As common with other route options, Route Options 1a and 1b pass through part of Galashiels upon exiting the substation. They route along sparsely settled higher ground to the north of the study area. They pass to the south of a cluster of properties at Legerwood. Route Option 1b passes close to the north of the settlement of Gordon, although woodland to the north of the settlement is likely to filter / screen views towards OHL development. In terms of views from main transport routes, these options cross the A68 near Birkhill, the A6089 to the north of Gordon, the A6105 south-east of Greenlaw and the A697 north of Eccles.		Route Option 2 largely follows the existing 'U' route for its entire length. As with the existing OHL, the option routes along lower-lying ground through the centre of the study area and is less likely to be visible upon the horizon from the surrounding lowlands. In common with other route options, Route Option 2 passes through part of Galashiels upon exiting the substation. Views towards this route option will be available from the north of Earlston as it passes to the north of the settlement. This route option passes to the north of Eccles, and views will be available from	Route Option 3 largely follows the existing 'U' route for the first 10km, from Galashiels to a point east of Earlston. As with the existing OHL, the option routes along lower-lying ground in the centre and south of the study area and is less likely to be visible upon the horizon from the surrounding lowlands. In common with other route options, Route Option 2 passes through part of Galashiels upon exiting the substation. This route option passes through more settled, lower-lying ground and views towards it may be	Overall, Route Option 2 is preferred on landscape and visual grounds, as it is the shortest route and avoids sensitive landscape and visual receptors, with the exception of the pinch point at the Leader Water, which all routes must cross. Replacement of the existing 'U' route with a new OHL on the same route will

		Felling of trees will be required to accommodate OHL where these route options cross the Allan Water to the north of Meadowfield Driving Range, and where they cross the Leader Water. Felling may also be required where the route options cross the Thirlington Burn, to the south-east of Greenlaw. These route options run alongside an existing 132kV OHL near Galashiels substation, running parallel to this route for approximately 7km. They also pass in close proximity to the 400kV 'ZA' route, crossing the 'ZA' route near the Leader Water.	parts of the settlement with open views in this direction. In terms of views from main transport routes, this route option crosses the A68 north of Earlston, the A6089 south of Gordon and the A697 near Eccles substation. Felling of trees may be required to accommodate OHL to the north-east of Galashiels substation, where the route crosses the Allan Water. It may also be required to the east and west of the Leader Water, where the existing 'U' route passes through a number of belts of woodland, and where the route crosses the A6105 near Kelso Hill. Felling may also be required where the route passes through a belt of woodland to the east of Fans, and where the route crosses the minor road and Lambden Burn to the north-east of Eccles. In addition to the 'U' route, this route option runs alongside an existing 132kV OHL for a short stretch of approximately 1km to the north of Galashiels substation. It runs broadly parallel to the 'ZA' route for approximately 15km, and will be seen in combined views with this OHL from settlements including	available from settlements including Earlston, Smailholm, Nenthorn, Stichill and Eccles, although woodland in and around these settlements may filter / screen views. In terms of views from main transport routes, this route option crosses the A68 north of Earlston, the A6089 north of Nenthorn, and the A697 near Eccles substation. This route option follows the same alignment as Route Option 2 between Galashiels substation and the Leader Water and felling may be required along the same parts of this section of the route. Beyond this, felling may be required where the route crosses belts of woodland surrounding the Eden Water to the east of Nenthorn. It will also be required to the south of Sweethope Hill, where the route passes through an area with a number of blocks of woodland. In addition to the 'U' route, this route option runs alongside an existing 132kV OHL for a short stretch of approximately 1km to	present less of a change in landscape character and visual amenity compared to introduction of new infrastructure into a previously unaffected area.
--	--	--	--	--	---

			Earlston and Eccles. It also parallels the 'AT' route for the final 4km approach to Eccles substation.	the north of Galashiels substation. It runs within 1km of the 'AT' route from Smailholm to Eccles, and broadly parallel to the 'ZA' route for around 4km. It will be seen in combined views with the 'ZA' route from Eccles.	
	Landscape Designations	There are no landscape designations within any of the Route Options. However, there are nationally and locally designated landscapes to the immediate south of the study area boundary, including the Eildon and Leaderfoot National Scenic Area (NSA), the Tweed Lowlands Special Landscape Area (SLA) and the Tweed, Ettrick and Yarrow Confluences SLA. Route Options 2 and 3 pass within 2km of the Eildon and Leaderfoot NSA, and Route Option 3 also passes within 1km of the Tweed Lowlands SLA.			
	Landscape Character	The susceptibility of landscape character types (LCT) to overhead lines has been assessed in Appendix C . Assessed sensitivity levels are between medium-low and medium high.			
		Route Options 1a and 1b pass through the following LCTs: ■ Pastoral Upland Fringe Valley LCT (medium-high susceptibility) ■ Undulating Upland Fringe LCT (medium-high susceptibility) ■ Settled Upland Fringe Valley LCT (medium-low susceptibility) ■ Rolling Farmland – Borders LCT (medium-high susceptibility) ■ Lowland Margin LCT (medium susceptibility)	As common with other route options, Route Option 2 passes through the following LCTs: ■ Pastoral Upland Fringe Valley LCT (medium-high susceptibility) ■ Undulating Upland Fringe LCT (medium-high susceptibility) ■ Settled Upland Fringe Valley LCT (medium-low susceptibility)	As common with other route options, Route Option 3 passes through the following LCTs: ■ Pastoral Upland Fringe Valley LCT (medium-high susceptibility) ■ Undulating Upland Fringe LCT (medium-high susceptibility) ■ Settled Upland Fringe Valley LCT (medium-low susceptibility)	
	Tourism and Recreation: potential for views from OS promoted viewpoints, Sustrans	Route Options 1a and 1b cross the Southern Upland Way which passes from north to south through the western part of the study area.	Route Option 2 crosses the Southern Upland Way which passes from north to south through the western part of the study area.	Route Option 3 crosses the Southern Upland Way which passes from north to south	

	routes, core paths, long distance trails, tourist attractions and recreational areas such as golf courses	Both route options cross one core path located near Galashiels Substation. Route 1b is also within 500m of Greenknowe Tower, a Historic Scotland property at Gordon which offers views across the area, while Route 1a is over 1.5km away.		Route Option 2 crosses one core path near Galashiels substation and a number of core paths near Earlston. Route Option 2 passes within 1km of Hume Castle, a publicly accessible site with views over the surrounding area. This route option is within 2km of parkland landscape associated with Mellerstain, which is open to the public, but views will be limited by woodland.	through the western part of the study area. Route Option 3 crosses part of the NCR 1 as it follows a minor road near Eccles. This route option crosses core paths near Galashiels substation, and around Earlston, Smailholm and Stichil. Route Option 2 passes within 2km of Hume Castle, a publicly accessible site with views over the surrounding area. This route option is within 2km of parkland landscape associated with Mellerstain, which is open to the public, but views will be limited by woodland.	
Cultural Heritage	Scheduled monuments	There are two scheduled monuments located within Route Option 1a: ■ Corbie Tower house, east of Ledgerwood ■ Crosshall Cross near Laprig Burn. These assets would be sensitive to both physical and setting change. There are a further 21 scheduled monuments within	There is one scheduled monument located within Route Option 1b: ■ Crosshall Cross near Laprig Burn. This asset would be sensitive to both physical and setting change. There are a further 21 scheduled monuments within the 3km study area. The majority are prehistoric settlements, of which several are hillforts, as well	There is one scheduled monument located within Route Option 2: ■ Crosshall Cross near Laprig Burn. This asset would be sensitive to both physical and setting change. There are a further 21 scheduled monuments within the 3km study area. These are predominantly prehistoric settlements, including several hill forts, but also include enclosures. There is also a prehistoric cairnfield. The other monuments include medieval	There is one scheduled monuments located within Route Option 3: ■ Crosshall Cross near Laprig Burn. This asset would be sensitive to both physical and setting change. There are a further 22 scheduled monuments within the 3km study area. These are predominantly prehistoric settlements, including several hill forts, but also include	On balance, Route Option 2 appears most likely to affect the lowest number of heritage assets and potentially to result in the least setting change given that it largely follows the existing 'U' route.

		the 3km study area. The majority are prehistoric settlements, of which several are hillforts, as well as a prehistoric cairnfield and barrow. The rest include a deserted medieval settlement (DMV), a motte and bailey castle and two medieval ecclesiastical sites, as well as four post-medieval tower houses. The hillforts, castle/ mottes and tower house will likely have strategic/ power relationships that are reflected through their siting and visibility within and of the surrounding landscape that could be sensitive to setting change. The DMV is likely to be so too, as its historic rural setting and the understanding of their history/ function could be changed by the introduction of the OHL. Cairns and barrows are designed to be visible monuments, and both appear to be located in woodland suggesting that they would have a limited setting that did not interact with the proposed OHL. The nunnery is located in Eccles near the parish Church and whilst it may have once had a functional relationship with the surrounding agricultural land, this Route Option is unlikely to contribute to the understanding of its illustrative and evidential value.	as a prehistoric cairnfield and barrow. The rest include a deserted medieval settlement, a motte and bailey castle, another motte site, two medieval ecclesiastical sites and five post-medieval tower houses. The hillforts, castle/ mottes and tower house will likely have strategic/ power relationships that are reflected through their siting and visibility within and of the surrounding landscape that could be sensitive to setting change. The DMV is likely to be so too, as its historic rural setting and the understanding of their history/ function could be changed by the introduction of the OHL. Cairns and barrows are designed to be visible monuments, rather to have visibility, and both appear to be located in woodland suggesting that they would have a limited setting that did not interact with the proposed OHL. The nunnery is located in Eccles near the parish Church and whilst it may have once had a functional relationship with the surrounding agricultural land, this Route Option is unlikely to contribute to the understanding of its illustrative and evidential value.	castles and mottes, two ecclesiastical sites, a deserted medieval settlement and three post-medieval tower houses. The hillforts, castle/ mottes and tower house will likely have strategic/ power relationships that are reflected through their siting and visibility within and of the surrounding landscape that could be sensitive to setting change. The DMV is likely to be so too, as its historic rural setting and the understanding of their history/ function could be changed by the introduction of the OHL. Cairns are designed to be visible monuments, rather to have visibility and this example appears to be in woodland, suggesting that it would have a low sensitivity to setting change, if any. The nunnery is located in Eccles near the parish Church and whilst it may have once had a functional relationship with the surrounding agricultural land, this Route Option is unlikely to contribute to the understanding of its illustrative and evidential value.	enclosures. There are also two prehistoric burial monuments. The other monuments include a medieval castle and a motte, two deserted medieval settlements (DMVs), two ecclesiastical site and two post-medieval tower houses. The hillforts and castle/ mottes will likely have strategic/ power relationships that are reflected through their siting and visibility within and of the surrounding landscape that could be sensitive to setting change. The DMVs are likely to be so too, as their historic rural setting and the understanding of their history/ function could be changed by the introduction of the OHL. The nunnery is located in Eccles near the parish Church and whilst it may have once had a functional relationship with the surrounding agricultural land, this Route Option is unlikely to contribute to the understanding of its illustrative and evidential value.	.
--	--	--	--	---	---	---

	Listed buildings	There are eight listed buildings located within Route Option 1a, six of which fall under one list entry: ■ Birkhill House (category B) including: – courtyard outbuildings x 3; – Birkhill Cottage; and – boundary wall and gateway. ■ Corsbie Farmhouse (category B) ■ Pittlesheugh Farmhouse (category C) There are a further 235 list entries within the 3km study area (covering 315 listed structures). These comprise 17 category A entries, 84 category B entries and 133 category C entries. One category A listed building - Ledgerwood Church - stands immediately north of the Route Option and there are several category B structures in close proximity to the eastern half of the Route Option, including country houses associated with locally designated designed landscapes, which suggests a sensitivity to setting change. However, the majority of these listed structures will not have a setting that contributes to its	There are nine listed buildings located within Route Option 1b, six of which fall under one list entry: ■ Birkhill House (category B) including: – courtyard outbuildings x 3; – Birkhill Cottage; and – boundary wall and gateway. ■ Corsbie Farmhouse (category B) ■ Pittlesheugh Farmhouse (category C) ■ Stonefold Farmhouse, gates and walls (category C). There are a further 233 list entries within the 3km study area (covering 307 listed structures). These comprise 17 category A entries, 83 category B entries and 133 category C entries. One category A listed building - Ledgerwood Church - stands immediately north of the route option and there are several category B structures in close proximity to Route Option heading east from Gordon. These include the Parish Church at	There is one listed building located within Route Option 2: ■ Stonefold Farmhouse (category C) There are a further 273 list entries (covering 354 listed structures) within the 2km study area including 15 category A entries, 99 category B entries and 159 category C entries. The category A structures are all located along the western half of the Route Option and most do not appear to have a setting that would interact with the proposed OHL. (Note that the category A Mellerstain House has a designed view directly towards the route that appears to be terminated by woodland but the potential for visibility of the OHL would need further analysis than is possible here). The category B and C structures are spread along the Route Option and their sensitivity will vary according to their heritage significance. However, whilst it is of note that the category B listed Anton's Hill stands close to the eastern end of the Route Option, which intersects with its locally recognised designed landscape, the majority of these listed buildings will not have a setting that contributes to its significance/ interacts with the proposed OHL.	There are no listed buildings located within Route Option 3, but there are 287 list entries within the 3km study area (covering 373 listed structures). These comprise 15 category A list entries, 107 category B list entries and 165 category C list entries. Most of the category A structures are located along the western end of the Route Option. Three are located in designed landscapes and could be sensitive to setting change, but the remaining five appear to be separated from the Route Option by intervening built development and topography making setting sensitivity to the proposed OHL less likely. The category B and C structures are spread along the Route Option and their sensitivity will vary according to their heritage significance. However, whilst it is of note that the category B listed Anton's Hill stands close to the eastern end of the Route Option, which intersects with its locally recognised designed landscape, the majority of these listed buildings will not have a setting that contributes to its significance/ interacts with the proposed OHL.	
--	------------------	---	--	---	---	--

		significance/ interacts with the proposed OHL.	Gordon and country houses associated with locally designated designed landscapes, which suggests a sensitivity to setting change. However, the majority of the listed structures in the study area are unlikely to have a setting that contributes to its significance/ interacts with the proposed OHL.			
	Conservation Areas	There are three conservation areas within the 3km study area: ■ Darnick CA ■ Galashiels CA ■ Greenlaw CA Due to intervening development and topography, only Greenlaw CA is likely to have any potential sensitivity to setting change.	There are five conservation areas within the 3km study area: ■ Darnick CA ■ Galashiels CA ■ Greenlaw CA ■ Gattonside CA ■ Melrose CA Due to intervening development and topography, only Greenlaw CA is likely to have any potential sensitivity to setting change.	There are four conservation areas within the 3km study area: ■ Darnick CA ■ Galashiels CA ■ Gattonside CA ■ Melrose CA Due to intervening development/ topography it is unlikely that any of these conservation areas would be sensitive to change as a result of this Route Option.	There are six conservation areas within the 3km study area: ■ Darnick CA ■ Galashiels CA ■ Gattonside CA ■ Melrose CA ■ Redpath CA ■ Smailholm CA Due to intervening development/ topography only Smailholm CA is likely to have any potential sensitivity to setting change.	

	Inventory gardens and designed landscapes	Within the 3km study area there are five GDLs: ■ Marchmont ■ Abbotsford ■ Carolside and Leadervale ■ Mellerstain ■ The Hirsell Intervening development/ topography/ vegetation means that Abbotsford, Marchmont and potentially The Hirsell are unlikely to be sensitive to change as a result of the proposed OHL.	Within the 3km study area there are five GDLs: ■ Marchmont ■ Abbotsford ■ Carolside and Leadervale ■ Mellerstain ■ The Hirsell This route passes much closer to Mellerstain than route 1a. Intervening development/ topography/ vegetation means that Abbotsford, Marchmont and potentially The Hirsell are unlikely to be sensitive to change as a result of the proposed OHL.	The route option is immediately adjacent to: ■ The southern boundary of Carolside and Leadervale GDL. ■ The northern boundary of Mellerstain GDL. Both could be sensitive to setting change. Other GDLs in the study area include: ■ The Hirsell ■ Abbotsford Intervening development/ topography/ vegetation means that neither is unlikely to be sensitive to change as a result of the proposed OHL.	The route option is immediately adjacent to: ■ The southern boundary of Carolside and Leadervale GDL. ■ The southern boundary of Mellerstain GDL. Both could be sensitive to setting change. It also passes close to Newton Don GDL and terminates – as the other route options do – near The Hirsell GDL. Another two GDLs intersect with the study area: ■ Abbotsford ■ Floors Castle Intervening development/ topography/ vegetation means that Abbotsford and potentially The Hirsell are unlikely to be sensitive to change as a result of the proposed OHL.		
	Inventory historic battlefields	Within the 3km study area there is the site of the Battle of Darnick. Due to intervening development and topography the Route Option is unlikely to form part of the setting of this asset.					
	Non-designated records identified by the Scottish Borders Historic Environment Record/ Canmore and SBC	There are a total of 81records within this Route Option comprising 13 findspots and 66 potential sites (two records for assets that are also scheduled have been	There are 74 records within this Route Option comprising nine findspots and 67 potential sites (a record for an asset that is also scheduled has been	There are 81 records within this Route Option comprising 24 findspots and 51 potential sites (a record for an asset that is also scheduled has been discounted to avoid duplication). These include	There are 59 records within this Route Option comprising 11 findspots and 49 potential sites (a record for an asset that is also scheduled has been discounted to avoid duplication).		

	recognised local designed landscapes	discounted to avoid duplication). The latter includes archaeological and upstanding remains relating to archaeology of prehistoric to modern date. Whilst many of these assets will be of local importance, there are some that may be of regional or even equivalent to national importance. All will be sensitive to physical change but not all will have a setting that contribute to their significance or which interacts with the proposed OHL. This Route Option also intersects with four locally recognised designed landscapes. ■ Rowchester (of some local significance). ■ Anton's Hill (of some local significance). ■ Chapel on Leader (of high local significance). ■ Langlee. (of high local significance). A further 19 locally recognised designed landscapes lie within the 3km study area.	discounted to avoid duplication). These include archaeological and upstanding remains relating to archaeology of prehistoric to modern date. Whilst many of these assets will be of local importance, there are some that may be of regional or even equivalent to national importance. All will be sensitive to physical change but not all will have a setting that contribute to their significance or which interacts with the proposed OHL. This Route Option also intersects with four locally recognised designed landscapes. ■ Rowchester (of some local significance). ■ Anton's Hill (of some local significance). ■ Chapel on Leader (of high local significance). ■ Langlee. (of high local significance).	archaeological and upstanding remains relating to archaeology of prehistoric to modern date. Whilst many of these assets will be of local importance, there are some that may be of regional or even equivalent to national importance. All will be sensitive to physical change but not all will have a setting that contribute to their significance or which interacts with the proposed OHL. This Route Option also intersects with two locally recognised designed landscapes. ■ Anton's Hill (of some local significance). ■ Langlee. (of high local significance). A further 19 locally recognised designed landscapes lie within the study area.	These include archaeological and upstanding remains relating to archaeology of prehistoric to modern date.: Whilst many of these assets will be of local importance, there are some that may be of regional or even equivalent to national importance. All will be sensitive to physical change but not all will have a setting that contribute to their significance or which interacts with the proposed OHL. This Route Option also intersects with four locally recognised designed landscapes. ■ Nenthorn (of local, high significance). ■ Stichill (of some local significance). ■ Langlee. (of high local significance). ■ Anton's Hill (of some local significance). A further 20 locally recognised designed landscapes lie within the 3km study area.	
--	---	--	--	---	--	--

			A further 19 locally recognised designed landscapes lie within the study area.			
Land Use	Existing and Approved Wind Turbines	There are two existing and approved individual turbines located within Route Options 1a and 1b: ■ Birkinside wind turbine - located in the western extent of the study area, adjacent to the point where the 'ZA' route crosses both Route Options. Although this turbine can be avoided through detailed design, it is located in an area that is considered to be a technical "pinch-point" due to the other existing technical constraints at this location. ■ Mossbank wind turbine - located in the western extent of the study area, in the centre of Route Options 1a and 1b. This turbine can be avoided through detailed design.	There are no existing and approved individual turbines located within Route Option 2. There is however, one turbine located within 150m of the Route Option: ■ Easter Howlaws Farm wind turbine – located north of Route Option 2 in the eastern extent of the study area. Note the existing ZA and 'U' routes are within the same distance from this turbine. This turbine can be avoided through detailed design.	There are no existing and approved individual turbines located within Route Option 3.	On balance, Route Options 2 is preferred. Route Options 2 has no turbines located within the Route Options (unlike Route Options 1a and 1b). The majority of LCA Class 2 and 3.1 land within Route Option 2 is already accustomed to the presence of existing OHL infrastructure, particularly the existing 'U' route which follows a similar route alignment to Route Option 2. Disturbance to LCA Class 2 and 3.1 land is therefore, considered to be of a lesser extent	
	Approved and Approved on Appeal residential-use planning applications	There are no residential approved planning applications within Route Options 1a and 1b. Within 150m from both Route options, there are two approved residential planning applications which may be subject to amenity effects. These comprise: ■ Erect a dwelling house with detached garage located in the north-west extent of the study area. ■ Erect a dwelling house adjacent to Galashiels substation. These are small in scale and can be avoided through detailed design.	There are no residential approved planning applications within Route Options 2 and 3. Within 150m from Route Options 2 and 3, there are two approved residential planning applications which may be subject to amenity effects. These comprise: ■ Erect a dwelling house in the western extent of the study area, near Galashiels substation. ■ Erect a dwelling house adjacent to Galashiels substation. These are small in scale and can be avoided through detailed design.			

	Approved and Approved on Appeal non-residential planning applications of a size and geographic location to be considered 'major areas'	There are three non-residential approved planning applications located within Route Options 1a and 1b to: ■ Erect an Agricultural Building, located near Eccles substation. This is small in scale and can be avoided through detailed design. ■ Change land use to form animal assisted therapy activities, crafting, walking and talking groups, an alpaca picnic park and a small retail park, located in the north-western extent of the study area. This can be avoided through detailed design. ■ Change land use to commercial storage, located near Galashiels substation in the centre of the Route Option. This can be avoided through detailed design.	There are four non-residential approved planning applications located within Route Option 2 to: ■ Change of land use to commercial storage, located near Galashiels substation in the centre of the Route Option. This can be avoided through detailed design. ■ Erect a building to house a biomass plant, approximately 2km north-west of Earlston. This can be avoided through detailed design. ■ Erect an agricultural building near the centre of the study area. This is small in scale and can be avoided through detailed design. ■ Erect an Agricultural Building, located near Eccles substation. This is small in scale and can be avoided through detailed design.	There are three non-residential approved planning applications located within Route Option 3 to: ■ Erect an Agricultural Building, located near Eccles substation. This is small in scale and can be avoided through detailed design. ■ Erect an agricultural building near the south-east extent of the study area. This can be avoided through detailed design. ■ Erect agricultural building with below ground slurry store near the south of the study area. This can be avoided through detailed design.	than for Route Options 1a, 1b and 3.
	Scottish Borders Council Local Development Plan	There are no Development Areas identified within the SBC Local Development Plan which are present within the Route Options.			

	Land Capability for Agriculture (LCA) classification (Classes 2 and 3.1)	There is a total of 270.6ha of LCA Class 2 within Route Option 1a and 1b. There is a total of 1133.7ha of LCA Class 3.1 within Route Options 1a and 1b. The majority of these areas cannot be avoided through detailed design as they span the width of the Route Options. Note the existing 'ZA' route, 'U' route and 'AT' route are also present within these LCA Class 2 and 3.1 areas on the approach to Eccles substation in the eastern extent of the study area.		There is a total of 152ha of LCA Class 2 within Route Option 2. There is a total of 1039ha of LCA Class 3.1 within Route Option 2. The majority of these areas cannot be avoided through detailed design as they span the width of the route option. Note the existing 'U' route, and 'ZA' route are currently present within the majority of these areas. Part of the 'AT' route is also present within these LCA Class 2 and 3.1 areas near Eccles substation.		There is a total of 149.6ha of LCA Class 2 within Route Option 3. There is a total of 1111.3ha of LCA Class 3.1 within Route Option 3. The majority of these areas cannot be avoided through detailed design as they span the width of the route option. Note the existing 'AT' route, 'U' route and 'ZA' route is also partly present within these LCA Class 2 and 3.1 areas.		
Forestry and Woodland	Ancient Woodland (AWI)	There are no areas of Ancient Woodland with the Route Options.						On balance, Route Options 1a and 1b are preferred as these route options avoid the majority of NWSS and NFI.
	Native Woodland (NWSS)	There is a total of 40.28ha of NWSS within Route Option 1a.	There is a total of 35.48ha of NWSS within Route Option 1b.	There is a total of 38.10ha of NWSS within Route Option 2.		There is a total of 45.59ha of NWSS within Route Option 3.		
		The majority of NWSS can be avoided during the design stage. There is, however, one expanse of NWSS which spans all route options adjacent to Galashiels substation, which cannot be avoided. There is, one area to the north-west where NWSS located directly adjacent to an area of NFI collectively spans the width of the route options. Therefore, routeing through forestry is unavoidable at this point. Note the existing 400kV 'ZA' OHL		The majority of NWSS can be avoided during the design stage. There are, however, three expanses of NWSS which cannot be avoided during the design stage as they span the width of the route options near Earlston and Galashiels substation. Note the existing 'U' route is currently present within this woodland. Whilst the 'U' route will be present during the construction of the new OHL, it will be removed from the landscape once construction of the new OHL is complete.				

		also routes through this woodland and will continue to be present following construction of the new OHL.				
	Forestry (NFI)	There is a total of 114.7ha of NFI within Route Option 1a.	There is a total of 116.5ha of NFI within Route Option 1b.	There is a total of 112.4ha of NFI within Route Option 2.	There is a total of 120.8ha of NFI within Route Option 3	
	The majority of NFI can be avoided during the design stage. There is, however, one expanse of NFI which is located directly adjacent to an area of NWSS woodland in the north-west of the route option. When viewed in their entirety, this area of NWSS and NFI spans the width of the route options, therefore, routeing through forestry is unavoidable at this point. Note the existing 400kV 'ZA' OHL also routes through this		The majority of NFI can be avoided during the design stage. There are however, four expanses of NFI which cannot be avoided during the design stage as these span the width of the route options. Three of these expanses are located north-west of Earlston and the fourth is located near Galashiels substation. Note the existing 'U' route is also present within these expanses, however, will be removed following construction of the new OHL.			

		woodland and will continue to be present following construction of the new OHL.	Another area to note is an expanse of NFI which spans the majority of the Route Option 2 near the centre of the study area. The remaining small area of non-woodland is already dominated by the existing 'U' route (which will remain in the landscape during the construction of the proposed new route). To maintain safety clearance from the 'U' route, the proposed new OHL will therefore, require routeing through the woodland.		
Hydrology and Flood Risk	Flood Zones and Waterbodies	Route Options 1a and 1b cross 10 watercourses (and various field drains) which span the width of the Route Options. These include the Leet Water, Eden Water, Leader Water, Allan Water, Lambden Burn, Gordonmains Burn and other unnamed tributaries. These crossings can, however, be spanned by the OHL infrastructure, and the siting of infrastructure will avoid them during detailed design. Based on mapped watercourses on 1:25K Ordnance Survey, no other watercourses require to be crossed. There are other watercourses and waterbodies present within the route	Route Option 2 crosses six watercourses (and various field drains) which span the width of the Route Option. These include the Leet Water, Eden Water, Leader Water, Allan Water, Lambden Burn, Hareford Burn and other unnamed tributaries. These crossings can, however, be spanned by the OHL infrastructure, and the siting of	Route Option 3 crosses seven minor watercourses (and various field drains) which span the width of the route option. These include the Allan Water, Leader Water, Eden Water, Leet Water and other unnamed tributaries. These crossings can, however, be spanned by the OHL infrastructure, and the siting of	On balance, Route Option 2 is preferred as this route requires crossing the least number of watercourses.

		options, however, these can be avoided through detailed design as they do not span the width of the route options. For example, Route Option 1a parallels the Eden Water in the north of the route option. The SEPA predicted 200-year flood risk data for all watercourses present within both Route Options is generally constrained close to the channel and can be spanned/avoided during detailed design.	infrastructure will avoid them during detailed design. Based on mapped watercourses on 1:25K Ordnance Survey, no other watercourses require to be crossed. There are other watercourses and waterbodies present within the route option, however, these can be avoided through detailed design as they do not span the width of the route option. The SEPA predicted 200-year flood risk data is generally constrained close to the channel for the majority of watercourses present within Route Option 2 and can therefore, be spanned. The exception to this includes a section of the Eden Water near both Merse and the Wareford Burn (a tributary of the Eden Water) near Gordon. This is, however, not considered to be a constraint as the OHL towers will be able to span this area. Note the existing 'ZA' route and 'U' route also span the watercourses at these points.	infrastructure will avoid them during the detailed design. Based on mapped watercourses on 1:25K Ordnance Survey, no other watercourses require to be crossed. There are other watercourses and waterbodies present within the route option, however, these can be avoided through detailed design as they do not span the width of the route option. The SEPA predicted 200-year flood risk data for all watercourses present within Route Option 3 is generally constrained close to the channel and can be spanned.	
Technical³⁰	Altitude and Topography	For Route Options 1a and 1b, altitude and topography are given a medium risk rating.	For Route Option 2, altitude and topography are given a medium risk rating.	For Route Option 3, altitude and topography are given a medium risk rating.	On balance, Route Option 2 is preferred as this route is the

³⁰ Technical Appraisal undertaken by SPEN

		Approximately 13% of both Route Options (4.27km) is above (>)200m in altitude above ordnance datum (AOD). The highest point of the Route Options is 260m AOD. Approximately 1.6km of longitudinal steep ground slopes greater than 11 degrees is present within Route Options 1a and 1b. There are no slopes greater than 22 degrees within both Route Options.	Approximately 8.9% of Route Option 2 (2.64km) is >200m AOD. The highest point of Route Option 2 is 280m AOD. Approximately 1.1km of longitudinal steep ground slopes is present within Route Option 2. There are no slopes greater than 22 degrees within Route Option 2.	Approximately 8.4% of Route Option 3 (2.64km) is >200m AOD. The highest point of Route Option 3 is 280m AOD. Approximately 1.1km of longitudinal steep ground slopes is present within Route Option 3. There are no slopes greater than 22 degrees within Route Option 3.	shortest in length, crosses the fewest public roads (presenting an engineering and safety constraint) and has the potential to avoid crossing the existing 'ZA' and 'U' routes during construction through careful routeing design. The proximity to the 'U' route will also provide the opportunity to share construction/ decommissioning infrastructure.
	Crossing of /proximity to existing OHLs	The crossing of existing OHL transmission and distribution infrastructure is given a high risk rating for Route Options 1a and 1b. The proximity to existing OHLs is given a medium risk rating. Both Route Options 1a and 1b briefly run in parallel with the existing 400kV ('ZA' route) OHL before crossing the 'ZA' route within the western extent of the study area. This cannot be avoided through detailed design as the 'ZA' route spans the width of the Route Options at this point. Route Options 1a and 1b also cross other OHLs 19 times, including crossing an existing 132kV OHL twice, which routes north from Galashiels substation. The majority of such crossings, however, can be avoided through detailed design. Route Options 1a and 1b also run in parallel with two 33kV OHLs, however, clearance is attainable within the route options through detailed design.	The crossing of and proximity to existing OHLs is given a medium risk rating for Route Option 2. There are 14 OHL crossings within Route Option 2, including a potential crossing of the existing 132kV ('U' route) OHL. Route Option 2 runs in parallel to the existing 400kV 'ZA' route for approximately half of the route in the eastern extent of the study area, however, clearances can be maintained through detailed design. The Route Option also runs in parallel to the existing 'U' route for the entirety of the route (which will be decommissioned following the construction of the new route). Two 33kV OHLs also run in parallel to Route Option 2, however, clearances are attainable through detailed design.	The crossing of and proximity to existing OHLs is given a medium risk rating for Route Option 3. There are 19 OHL crossings within Route Option 3. Of these crossings, only one cannot be avoided through detailed design. This involves the crossing of the existing 132kV ('AT' route) OHL in the southern extent of the study area. Additional crossings of the 'AT' route OHL may be required on approach to the substations. Route Option 3 also runs in parallel with a section of the 'AT' route, mainly within the eastern extent of the study area. The 'AT' route will be decommissioned following	

				construction of the new route. Two 33kV OHLs also run in parallel to Route Option 3, however, clearance is attainable through detailed design.	
	Crossing of/ proximity to other existing infrastructure, i.e. public service utilities, roads and railways and residential/industrial areas.	Route Options 1a and 1b cross a major gas pipeline at two locations, however, this can be avoided through detailed design whilst maintaining utility body statutory proximity limits. Both Route Options also cross four A roads (A68, A6089, A6105 and A697) including one High Load Road (A697). There are also 22 minor road crossings, however, all road crossings are within workable span/ clearance limitation requirements. There are several properties/pinch points present within both Route Options requiring clearances, however, these can be avoided through detailed design.	Route Option 2 crosses a major gas pipeline at two locations, however, this can be avoided through detailed design whilst maintaining utility body statutory proximity limits. Route Option 2 also crosses three A roads (A68, A6105 and A6089), none of which are high load roads. There are also 14 minor road crossings, however, all road crossings are within workable span/ clearance limitation requirements. There are several properties/ pinch points present within Route Option 2 requiring clearances, however, these can be avoided through detailed design.	Route Option 3 crosses a major gas pipeline at two locations, however, this can be avoided through detailed design whilst maintaining utility body statutory proximity limits. Route Option 3 also crosses three A roads (A68, A6105 and A6089), none of which are high load roads. There are also 24 minor road crossings, however, all road crossings are within workable span/ clearance limitation requirements. There are several properties/ pinch points present within Route Option 2 requiring clearances, however, these can be avoided through detailed design.	
Overall Emerging Preference		Overall emerging preferred route is Route Option 2. Route Option 2 is the shortest route and avoids sensitive landscape and visual receptors, with the exception of the pinch point at the Leader Water, which all routes must cross. Replacement of the existing 'U' route with a new OHL reflecting a similar route will present less of a change in landscape character and visual amenity compared to introduction of new infrastructure into a previously unaffected area.			

	In relation to biodiversity, the area is assumed to be already disturbed and local bird populations may be habituated to the presence of the existing OHL infrastructure and Route Option 2 does not cross any LWS. Route Option 2 also appears most likely to affect the lowest number of heritage assets and potentially result in the least setting change given that it largely follows the existing 'U' route. In relation to land use, all approved and approved on appeal planning applications located within Route Option 2 can be avoided through detailed design. The majority of LCA Class 2 and 3.1 land within Route Option 2 is already accustomed to the presence of existing OHL infrastructure, therefore disturbance to LCA Class 2 and 3.1 land is therefore, considered to be of a lesser extent than for other Route Options. Route Option 2 crosses the fewest watercourses with the OHL infrastructure able to span these during route alignment. Route Option 2 is also preferred by SPEN in relation to the technical criteria. Whilst Route Option 2 performs the most favourably on balance against the environmental and technical criteria above, the potential felling of NWSS woodland and NFI forestry will be required to be taken into consideration where possible during the detailed design and appraisal stages.
--	---

Appendix E

Newspaper Advertisement

We'd like your views

Public consultation

Overhead line replacement from Galashiels Substation to Eccles Substation

SP Energy Networks is seeking comments on a proposed 132 kilovolt (kV) double circuit overhead line, supported on steel lattice towers, which will replace the existing 132kV overhead line network (comprising existing 'U' and 'AT' routes) from Galashiels substation to Eccles substation in the Scottish Borders.

This consultation will run for four weeks between
Monday 27th September to Sunday 24th October 2021.

The closing date for comments will be **Sunday 31st October 2021.**

The information will remain accessible online and available to download in a pdf format after the
24th October 2021 from www.spenergynetworks.co.uk/galashiels-eccles

Due to current restrictions relating to the Covid-19 pandemic, a virtual, online consultation process is being undertaken, rather than a town hall presentation format. This will allow people to view the project information in a virtual environment and to leave comments on the preferred overhead line route. The Routeing and Consultation Report can be downloaded from the webpage above and information leaflets will also be distributed locally. Feedback from this event will then be considered by SP Energy Networks prior to the proposed route being determined and progressed to the detailed design stage.

From **27th September 2021**, the virtual consultation and questionnaire can be accessed from this link:
www.galaecclesohl.co.uk

You will be able to talk to us via the live chat service on the virtual exhibition room on the following dates:

Monday 27th September from 2pm-4pm

Tuesday 28th September from 10am-12pm

Wednesday 29th September from 5pm-7pm.

Comments can also be sent to the project email address

GalaEcclesOHL@spenergynetworks.co.uk

You can also call the Community Liaison Team on
07516461129

Or by writing to us:

Galashiels to Eccles 132kv Replacement Project,
Land and Planning Team, SP Energy Networks,
55 Fullarton Drive, Glasgow, G32 8FA

Please note - Comments at this stage are informal and are made to allow SP Energy Networks to determine whether changes to the route are necessary. An opportunity to comment formally to the Energy Consents Unit will follow at a later stage in the process following consultation by the Scottish Government once the application is submitted to them.

Appendix F

Project Leaflet

How do I make comments or find out more information?

Your feedback is an important part in helping SP Energy Networks to finalise the proposed route which considers technical, economic and environmental issues along with landowner and public opinion.

Our consultation will run for four weeks from **Monday 27th September 2021** to **Sunday 24th October 2021**. The closing date for you to send your responses to us is midnight on **Sunday 31st October 2021**. Following this date, the information will remain accessible online and available to download.

Please find below the best ways to find out more or talk to us.

Visit the online virtual exhibition from Monday 27th September 2021:

www.galaecclesohl.co.uk



In normal circumstances, we would engage with communities face-to-face through drop-in public exhibitions, however, given current social distancing advice, this is not possible. Therefore, we have prepared an online virtual consultation to replicate an in-person village hall experience. Here you can see detailed maps, read about the proposals, download the project information as a pdf, and provide feedback via the online questionnaire.

Visit the website:

www.spenergynetworks.co.uk/galashiels-eccles

Our dedicated website has lots more information. You can view or download all the project documents, including this leaflet, on the website.



Talk to us:

We will be on hand to answer any questions you may have via the live chat service on the virtual exhibition room on the following dates:

- Monday 27th September from 2pm-4pm
- Tuesday 28th September from 10am-12pm
- Wednesday 29th September from 5pm-7pm.

Email us: GalaEcclesOHL@spenergynetworks.co.uk

Write to us: Galashiels to Eccles 132kV Replacement Project
Land and Planning Team
SP Energy Networks, 55 Fullarton Drive, Glasgow, G32 8FA



What happens next



Thank you for taking the time to read this leaflet.



Galashiels to Eccles 132kV OHL Replacement Project

Public Consultation Leaflet

Background

SP Energy Networks, as the electricity transmission and distribution licence holder for central and southern Scotland, plans to replace the existing transmission infrastructure between Galashiels and Eccles substations in the Scottish Borders. This replacement will be to ensure that there is sufficient electricity transmission capacity in the network in the area.

The project will involve the construction and operation of a new 132 kilovolt (kV) overhead line (OHL) on steel towers and the removal of two existing 132 kV OHLs ('AT' and 'U' routes) which currently secure the supplies between the Galashiels and Eccles substations. This, collectively, is to be known as the 'Galashiels to Eccles 132kV OHL Replacement Project'.

SP Energy Networks is now seeking views on the proposals and the routeing work which has been undertaken to date. Further Information about the project, our plans for consultation, and how to make comments, is provided overleaf.

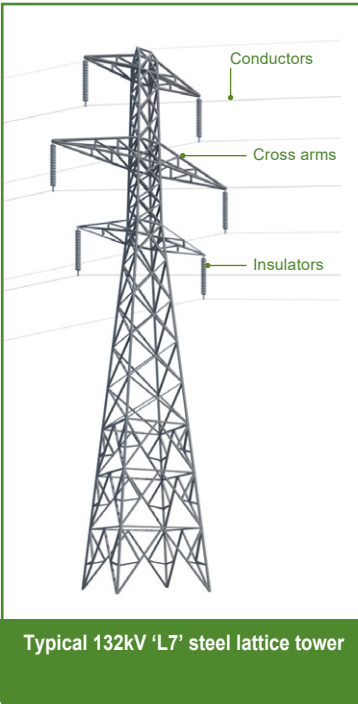


What will the Overhead Line look like?

The replacement OHL will be a double circuit 132kV OHL approximately 30 km in length, supported on 'L7' steel lattice towers. The towers will have six cross-arms (three on each side) and a standard design height of 27 metres (m) above ground. The section of OHL between the steel towers is known as the 'span'. Span lengths between the steel towers will average between 250m and 350m but can be increased if there is a requirement to span something such as a watercourse. Like the existing 'U' route, the towers will be fabricated from galvanised steel which will turn a dull grey colour after about 18 months. For technical reasons, a section of underground cable is also likely to form part of the connection as it enters into the Eccles substation.

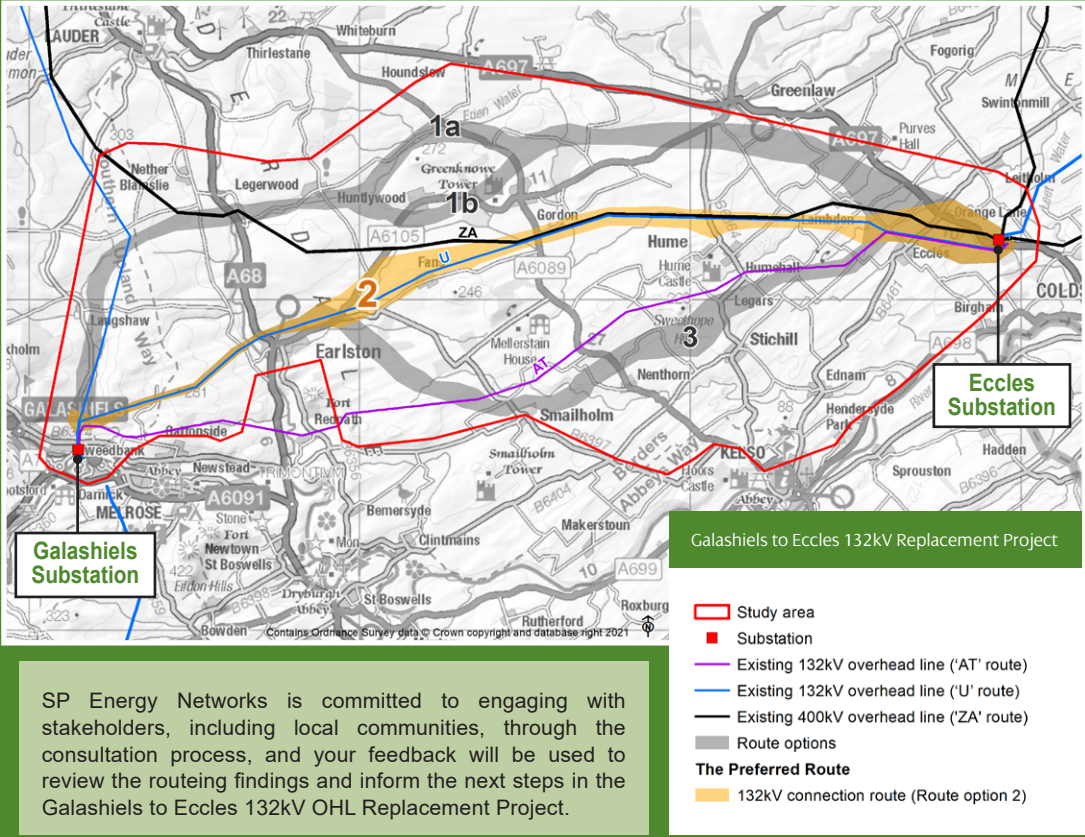
To maintain the electricity supplies in the area whilst the new OHL is being constructed, the existing 'AT' and 'U' routes will continue to be operational. Only after the new replacement OHL is fully installed and operational, will the existing OHLs be decommissioned and removed.

The decommissioning of the 'AT' route will require the removal of 30 km of existing single and double circuit 132kV OHL, comprising of single circuit double wood pole (average height of 14 m), single circuit steel lattice tower and double circuit steel lattice tower (average height of 22 m). The decommissioning of the 'U' route will require the removal of 26 km of existing single circuit 132kV OHL comprising of single circuit 132kV steel lattice towers (average height of 22 m).



Typical 132kV 'L7' steel lattice tower

Galashiels to Eccles 132kV OHL Replacement Project



Routing

SP Energy Networks has been working with independent environmental consultants to identify options for potential routes for the replacement OHL. Our objective is to identify a route for the replacement OHL which meets the technical requirements of the electricity system, which are economically viable and cause, on balance, the least disturbance to the environment and the people who live, work and enjoy recreation within it.

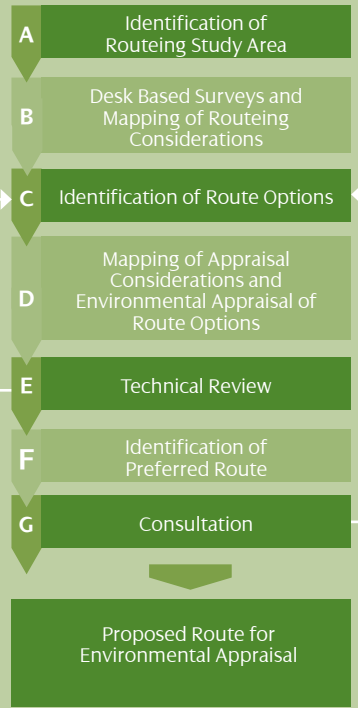
Following an established best practice methodology for routing OHLs, three route options were identified for the replacement OHL. Each of the route options were given a numerical reference: 1a, 1b, 2 and 3¹. The route options have the same connection points, i.e. between Eccles substation and Galashiels substation.

The three route options were appraised against environmental and technical criteria, including local landscape character and views, cultural heritage, biodiversity, topography, proximity to existing OHLs and route length to identify the preferred route. The preferred route is the one which achieves the best overall balance between limiting impacts on the environment and people, whilst also meeting SP Energy Networks' technical requirements.

¹ Whilst Route Option 1 is split into two parts (a and b), it has been treated as one route rather than two, hence the reference to three route options in total instead of four.

More information about the process we have followed to identify and appraise route options to select the preferred route can be found in our Routing and Consultation Document (September 2021). This is available at: www.spenergynetworks.co.uk/userfiles/file/SPEN_Approach_to_Routing_Document_2nd_version.pdf.

Routing Methodology



What we would like your views on?

As part of the consultation we would particularly like your views on:

- 1 The preferred route (Route Option 2) for the Galashiels to Eccles 132kV OHL Replacement Project.
- 2 Any of the alternative route options we considered during the routing process.
- 3 Any other issues, suggestions or feedback you would like us to consider. We would particularly like to hear your views on your local area, for example areas you use for recreation, local environmental features you would like us to consider, and any plans you may have to build in proximity to the preferred route.

Please note comments at this stage are informal comments and are made to allow SP Energy Networks to determine whether changes to the preferred route are necessary. An opportunity to comment formally to the Scottish Government Energy Consents Unit (ECU) will follow at a later stage in the process following submission of the Section 37 application.

Appendix G

Stakeholder Consultee List

The stakeholder groups listed below were consulted.

Table G.1: Consultees

Consultee	
Borders Bat Group	Mountaineering Scotland
British Horse Society	National Farmers Union of Scotland
British Telecom (BT)	NATS Safeguarding
British Trust for Ornithology (Lothian and Borders)	NatureScot
Civil Aviation Authority – Airspace	RSPB Scotland
Crown Estate Scotland	Scottish Badgers
Defence Infrastructure Organisation	Scottish Borders Council (Planning Authority)
Earlston Community Council	Scottish Forestry
Edinburgh Airport	Scottish Outdoor Access Network
Ednam, Sitchill and Berrymoss Community Council	Scottish Rights of Way and Access Society (ScotWays)
Fisheries – Local District Salmon Fisheries	Scottish Water
Fisheries Management Scotland	Scottish Wild Land Group (SWLG)
Floors, Makerstoun, Nenthorn and Smailholm Community Council	Scottish Wildlife Trust
Galashiels Community Council	SEPA
Gordon and Westruther Community Council	South Scotland Red Squirrel Group
Greenlaw and Hume Community Council	Sustrans Scotland
Historic Environment Scotland (HES)	The Coal Authority
John Muir Trust	The Health and Safety Executive (HSE)
Joint Radio Company	The National Trust for Scotland
Kelso Community Council	The Ramblers Association
Lauderdale Community Council	Transport Scotland
Leitholm, Eccles and Birgham Community Council	Tweedbank Community Council
Lothian and Borders Raptor Study Group	Visit Scotland
Melrose and District Community Council	